

UNITED STATES DEPARTMENT OF COMMERCE  
W. AVERILL HARRIMAN, Secretary  
WEATHER BUREAU F. W. Reichelderfer, Chief

# MONTHLY WEATHER REVIEW

OCTOBER 1946

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**CORRECTION**

MONTHLY WEATHER REVIEW, July 1948, vol 72, p. 127: Under heading of Middle Pacific Coast in the Climatological Table, heights of instruments for Red Bluff, Calif., should read 253, 5, and 26 feet for heights of barometer, thermometer, and anerometer, respectively.

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## METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR OCTOBER 1946

### AEROLOGICAL OBSERVATIONS

[For description of change in Table 1 and charts, see REVIEW, January 1946, p. 6.]

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during October 1946

#### STATIONS AND MEAN SURFACE PRESSURES

Standard pressure surface (mb.)	Albany, N. Y. (1,007.8 mb.)				Albuquerque, N. Mex. (836.2 mb.)				Apalachicola, Fla. (1,016.8 mb.)				Atlanta, Ga. (984.6 mb.)				Auburn, Calif. (956.3 mb.)				Big Spring, Tex. (926.0 mb.)				Bismarck, N. Dak. (952.8 mb.)				
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	
Surface	31	93	9.9	88	31	1620	14.7	39	27	5	20.6	81	31	300	14.9	79	31	501	13.9	50	30	774	19.0	66	30	505	4.9	72	
1,000	31	156	12.5	78	31	73	(*)	—	27	149	20.7	75	31	167	(*)	—	31	119	(*)	—	30	103	(*)	—	30	105	(*)	—	
950	31	590	10.9	71	31	525	(*)	—	27	592	18.5	71	31	608	16.3	69	31	559	15.1	47	30	550	(*)	—	30	528	(*)	—	
900	31	1,035	8.5	70	31	904	(*)	—	27	1,054	15.9	69	31	1,063	13.6	63	31	1,014	13.4	42	30	1,019	18.4	63	30	970	4.7	64	
850	31	1,506	6.8	63	31	1,481	(*)	—	37	1,538	13.9	59	31	1,544	11.6	54	31	1,492	10.2	41	30	1,508	16.4	60	30	1,434	2.0	68	
800	31	2,003	4.6	60	31	1,993	13.4	37	27	2,048	12.4	45	31	2,050	10.7	45	31	1,963	6.6	43	30	2,023	14.4	53	30	1,921	0.2	63	
750	31	2,535	2.2	55	31	2,534	9.4	40	27	2,591	10.3	43	31	2,590	8.7	41	31	2,524	3.4	42	30	2,562	11.4	46	30	2,441	-1.9	61	
700	31	3,082	-0.3	54	31	3,100	5.1	44	27	3,158	8.0	32	31	3,153	5.9	36	31	3,076	0.3	39	30	3,129	7.7	43	30	2,985	-4.6	59	
650	31	3,678	-3.3	52	31	3,703	0.9	50	27	3,771	4.8	31	31	3,700	2.7	31	31	3,667	-3.1	37	30	3,747	4.4	40	30	3,506	-7.8	59	
600	30	4,299	-7.1	54	31	4,339	-3.2	52	27	4,413	0.8	31	31	4,399	-1.1	31	31	4,295	-7.3	37	30	4,393	0.3	34	30	4,182	-11.1	60	
550	29	4,975	-11.3	48	31	5,022	-7.4	48	27	5,107	-3.5	31	31	5,090	-5.2	31	30	4,970	-11.5	35	29	5,086	-4.0	31	29	4,846	-15.0	55	
500	29	5,696	-15.7	44	30	5,764	-11.9	43	27	5,852	-8.3	31	31	5,830	-9.9	31	30	5,693	-16.1	39	29	5,832	-8.9	31	29	5,590	-19.6	49	
450	29	6,493	-20.8	50	30	6,564	-17.0	47	27	6,668	-13.6	31	31	6,641	-15.4	31	30	6,482	-21.5	35	26	6,652	-14.1	31	29	6,341	-24.4	—	
400	29	7,346	-26.8	—	30	7,433	-23.2	—	27	7,541	-20.2	31	31	7,512	-21.8	31	30	7,336	-27.3	35	25	7,530	-20.7	31	28	7,191	-30.1	—	
350	28	8,265	-34.1	—	30	8,396	-30.4	—	26	8,517	-27.2	31	31	8,481	-29.1	31	30	8,263	-34.4	34	24	8,502	-27.5	31	27	8,130	-36.4	—	
300	28	9,347	-41.7	—	30	9,474	-38.4	—	26	9,608	-35.1	31	31	9,564	-37.1	31	30	9,343	-41.9	34	24	9,593	-35.4	31	25	9,184	-42.9	—	
250	28	10,500	-50.0	—	30	10,705	-46.7	—	26	10,855	-44.1	31	31	10,799	-46.2	31	30	10,555	-50.0	39	22	10,839	-44.2	31	21	10,420	-48.6	—	
200	27	11,990	-57.9	—	28	12,151	-55.8	—	25	12,313	-54.6	30	31	12,253	-55.9	27	11,983	-56.2	31	17	12,314	-53.7	31	14	11,893	-53.4	—		
175	25	12,825	-60.2	—	20	13,009	-59.4	—	23	13,153	-60.0	29	31	13,067	-60.5	26	12,827	-58.8	31	15	13,169	-59.2	31	12	12,743	-55.2	—		
150	20	13,767	-60.6	—	14	13,970	-63.1	—	21	14,096	-65.9	26	14,051	-65.9	23	13,783	-60.5	31	17	14,146	-65.0	31	7	13,723	-57.3	—			
125	14	14,897	-60.0	—	6	15,112	-66.0	—	12	15,186	-71.5	16	15,154	-69.9	12	14,877	-59.2	—	—	—	—	—	—	—	—	—	—	—	—

Boise, Idaho (915.3 mb.)				Brownsville, Tex. (1,013.1 mb.)				Buffalo, N. Y. (992.8 mb.)				Burrwood, La. (1,016.5 mb.)				Caribou, Maine (994.2 mb.)				Charleston, S. C. (1,017.4 mb.)				Ciudad Victoria, Mexico (974.2 mb.)				
Surface	31	868	8.1	61	30	6	24.1	87	30	221	11.6	75	31	2	22.8	81	31	191	7.0	81	31	14	16.7	80	31	335	23.8	79
1,000	31	127	(*)	—	30	120	24.0	85	30	157	(*)	—	31	145	22.0	80	31	143	(*)	—	31	161	18.6	75	31	104	(*)	—
950	31	562	(*)	—	30	573	21.7	53	30	592	12.8	62	31	592	19.2	78	31	567	7.1	69	31	001	16.7	67	31	553	22.8	78
900	31	1,008	9.4	54	30	1,038	18.9	78	30	1,042	10.4	67	31	1,053	16.9	62	31	1,009	4.9	69	31	059	14.1	64	31	1,025	19.6	80
850	31	1,499	6.3	54	30	1,528	16.9	65	30	1,515	7.4	67	31	1,539	15.0	54	31	1,474	2.3	69	31	1,541	12.3	59	31	1,516	16.6	83
800	31	1,973	2.5	60	29	2,045	14.7	52	30	2,012	9.4	58	31	2,051	12.8	49	31	1,964	1.6	64	31	2,048	11.0	48	31	2,033	13.9	79
750	31	2,495	-1.2	67	29	2,595	12.3	46	30	2,540	2.1	55	31	2,595	10.6	36	31	2,486	-0.7	58	31	2,586	9.0	41	31	2,574	11.4	76
700	31	3,039	-4.6	66	29	3,166	9.7	40	30	3,091	-0.6	55	31	3,163	8.1	28	31	3,032	-3.0	60	31	3,153	6.5	32	31	3,150	8.8	64
650	31	3,622	-8.0	65	28	3,782	6.3	40	30	3,685	-3.5	50	31	3,776	5.0	31	31	3,618	-6.4	54	31	3,758	5.5	56	30	3,758	5.5	56
600	31	4,237	-11.3	60	30	4,431	2.7	39	20	4,309	-7.0	48	31	4,420	1.1	30	4,236	-9.2	44	31	4,404	-0.1	30	4,412	1.9	53		
550	30	4,902	-15.0	56	28	5,130	-1.3	33	29	4,985	-11.0	44	31	5,117	-2.9	30	4,903	-13.1	43	29	5,080	-4.0	31	30	5,105	-2.0	53	
500	30	5,615	-19.6	56	28	5,884	-5.7	29	5,708	-15.5	41	31	5,863	-7.6	30	5,625	-17.3	28	28	5,842	-8.7	31	30	5,952	-6.5	52		
450	29	6,392	-24.7	28	6,709	-10.8	—	28	6,505	-20.8	—	31	6,685	-12.9	30	6,416	-22.5	28	28	6,656	-14.2	29	28	6,680	-11.6	45		
400	29	7,232	-30.9</td																									

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during October 1946—Continued

Standard pressure surface (mb.)	Columbia, Mo. (988.0 mb.)			Dodge City, Kans. (922.5 mb.)			El Paso, Tex. (879.9 mb.)			Ely, Nev. (807.4 mb.)			Fort Worth, Tex. (991.2 mb.)			Glasgow, Mont. (936.7 mb.)			Grand Junction, Colo. (851.2 mb.)											
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity						
Surface	31	239	15.3	63	30	787	12.8	76	31	1,195	20.0	39	31	1,908	5.0	62	31	211	19.4	65	31	648	5.3	68	31	1,474	9.6	54		
1,000	31	135	(*)	30	100	(*)	73	31	116	(*)	31	134	31	106	(*)	31	106	(*)	31	106	(*)	31	108	(*)	31	108	(*)	31		
950	31	579	15.8	68	30	537	(*)	31	534	(*)	31	556	31	531	(*)	31	581	(*)	31	531	(*)	31	555	(*)	31	555	(*)	31		
900	31	1,030	13.3	58	30	995	13.5	66	31	1,003	(*)	31	1,012	31	1,012	(*)	31	1,040	16.2	62	31	975	5.4	63	31	1,012	(*)	31		
850	31	1,509	10.8	55	30	1,476	12.6	58	31	1,493	19.5	37	31	1,482	(*)	31	1,525	13.8	58	31	1,439	2.2	65	31	1,485	9.3	46			
800	31	2,013	8.7	45	30	1,983	11.0	50	31	2,011	15.6	40	31	1,983	6.0	58	31	2,035	11.8	51	31	1,925	-1.1	66	31	1,980	8.1	48		
750	31	2,548	6.1	44	30	2,523	8.3	39	31	2,558	11.6	43	31	2,515	3.4	55	31	2,577	9.3	47	31	2,442	-3.4	61	31	2,521	4.3	52		
700	31	3,106	3.0	41	30	3,085	4.7	38	31	3,128	7.7	44	31	3,065	-0.9	61	31	3,143	6.6	42	31	2,981	-6.4	61	31	3,075	0.1	59		
650	31	3,704	0.0	39	30	3,686	0.9	37	31	3,733	3.7	39	31	3,657	-4.7	58	31	3,752	3.4	36	31	3,562	-9.8	63	31	3,667	-4.2	65		
600	31	4,359	-3.9	38	30	4,324	-3.2	36	31	4,379	-0.7	42	31	4,279	-8.1	61	31	4,393	-0.3	35	31	4,170	-13.5	62	31	4,291	-8.3	60		
550	31	5,022	-8.1	34	30	5,005	-7.8	39	31	5,068	-5.2	37	31	4,953	-12.2	55	31	5,085	-4.5	33	30	4,820	-17.7	59	30	4,958	-12.5	58		
500	31	5,754	-13.0	38	30	5,740	-12.4	44	30	5,812	-9.8	31	31	5,672	-16.9	51	31	5,650	-9.3	30	30	5,680	-17.1	50	30	5,680	-17.1	50		
450	30	6,554	-17.9	34	30	6,543	-17.6	40	29	6,621	-15.4	40	30	6,462	-22.4	40	30	6,644	-14.6	30	30	6,299	-27.5	30	30	6,467	-22.8	30		
400	30	7,419	-24.0	30	30	7,408	-23.7	40	29	7,495	-21.7	40	30	7,314	-20.7	40	28	7,523	-20.7	30	30	7,133	-33.3	30	30	7,315	-28.5	30		
350	30	8,380	-31.0	30	30	8,370	-30.7	40	28	8,464	-28.8	30	30	8,258	-34.8	30	27	8,500	-27.7	28	28	8,059	-36.6	30	30	8,259	-35.1	30		
300	30	9,455	-38.6	30	30	9,445	-38.6	40	28	9,546	-37.0	30	30	9,317	-41.5	30	26	9,589	-36.1	26	26	9,096	-46.5	30	30	9,318	-41.7	30		
250	26	10,672	-47.1	30	30	10,674	-47.2	27	26	10,785	-46.1	27	30	10,534	-48.6	27	24	10,837	-45.0	22	20	12,313	-55.2	19	11	1,752	-54.8	17		
200	25	12,119	-55.4	21	12	132	-54.4	27	12	233	-56.5	29	11	1,976	-56.4	27	12	175	-59.8	15	12	1,622	-54.4	22	12	1,835	-57.2	15		
175	24	12,966	-58.7	16	12	969	-57.7	22	13	1,074	-61.2	27	25	12,809	-58.2	22	13	1,175	-59.8	12	13	1,175	-59.8	17	13	1,200	-57.2	15		
150	16	13,950	-62.6	9	13	900	-59.5	11	14	1,038	-66.5	11	20	13,787	-59.7	9	14	1,127	-64.8	13	13	1,197	-59.5	16	13	1,200	-59.2	15		
125	6	15,143	-66.0						9	14,930	-59.7			9	14,823	-56.2		5	14,823	-56.2		14	14,942	-61.5		14	14,942	-61.5		
	Great Falls, Mont. (884.6 mb.)			Greensboro, N. C. (988.9 mb.)			Hatteras, N. C. (1,018.7 mb.)			Havana, Cuba (---- mb.)			Honolulu, T. H. (1,013.2 mb.)			Huntington, W. Va. (999.1 mb.)			International Falls, Minn. (971.7 mb.)											
Surface	31	1,128	4.8	64	30	273	12.3	83	31	3	18.8	82		25	3	26.1	66	31	172	10.2	85	31	369	4.6	77					
1,000	31	112	(*)	30	178	(*)	31	162	18.0	80				25	118	24.7	68	31	165	(*)	31	122	(*)	31	122	(*)	31	122	(*)	31
950	31	544	(*)	30	615	14.1	71	31	601	15.7	75				25	573	20.9	72	31	598	15.2	56	31	543	5.4	71				
900	31	991	(*)	30	1,067	11.4	68	31	1,058	13.2	72				25	1,033	17.4	75	31	1,051	12.1	55	31	984	3.4	69				
850	31	1,452	3.8	58	30	1,543	9.2	59	31	1,538	11.1	62				25	1,520	14.6	72	31	1,527	-9.3	54	31	1,445	1.1	67			
800	31	1,943	0.7	60	30	2,044	7.4	48	31	2,043	9.7	47				25	2,032	12.9	58	31	2,028	0.8	47	31	1,931	-0.1	65			
750	31	2,459	-3.0	65	30	2,584	5.6	41	30	2,582	7.7	35				25	2,580	11.1	38	31	2,559	4.7	43	31	2,452	-2.0	60			
700	31	3,000	-6.5	68	30	3,136	3.8	35	30	3,142	5.2	32				24	3,145	8.5	31	3,115	2.2	40	31	2,992	-5.0	62				
650	31	3,580	-10.0	68	30	3,738	0.8	30	30	3,747	2.3	30				24	3,755	5.2	31	3,712	-0.6	38	31	3,577	-8.1	57				
600	31	4,190	-13.6	63	30	4,373	-3.0	30	30	4,386	-1.3	30				24	4,404	2.0	31	4,347	-4.0	39	31	4,190	-11.3	56				
550	31	4,850	-17.4	55	30	5,056	-7.2	30	30	5,074	-5.4	30				24	5,103	-2.2	31	5,026	-8.1	31	31	4,884	-15.2	56				
500	30	5,553	-22.2	52	30	5,793	-12.1	30	30	5,816	-10.0	30				24	5,851	-6.6	31	5,762	-12.8	30	30	5,572	-19.6	56				
450	29	6,329	-27.3	50	30	6,599	-17.8	30	30	6,626	-15.7	30				24	6,777	-11.9	31	6,558	-17.9	30	30	6,369	-24.4	56				
400	28	7,162	-33.1	50	30	7,462	-24.2	30	30	7,498	-22.0	30				24	7,555	-18.3	30	7,431	-24.2	30	30	7,196	-30.1	58				
350	28	8,092	-39.3	50	30	8,421	-31.4	28	28	8,472	-29.1	28				24	8,537	-25.8	30	8,391	-31.1	28	28	8,133	-36.5	58				
300	28	9,131	-46.8	50	30	9,494	-39.8	28	28	9,553	-37.3	28				23	9,635	-34.2	29	9,464	-38.9	27	27	9,187	-43.0	58				
250	27	10,323	-52.6	50	30	10,715	-49.3	26	26	10,777	-46.9	26				22	10,883	-43.9	28	10,694	-47.3	27	27	10,396	-49.6	58				
200	21	11,767	-54.5	49	30	12,155	-58.5	22	22	12,247	-54.8	22				18	12,342	-55.1	25	12,144										

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during October 1946—Continued

Standard pressure surface (mb.)	Merida, Mexico (1,009.2 mb.)			Miami, Fla. (1,015.0 mb.)			Nantucket, Mass. (1,017.9 mb.)			Nashville, Tenn. (998.1 mb.)			North Platte, Nebr. (915.3 mb.)			Oakland, Calif. (1,014.9 mb.)			Ogden, Utah (863.2 mb.)										
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity									
Surface	31	27	25.9	80	31	4	23.4	86	31	14	11.9	86	30	180	15.2	60	31	849	8.4	81	31	2	15.7	67	31	1,355	7.9	65	
1,000	31	108	25.2	80	31	135	23.9	81	31	159	14.3	74	30	163	(*)	55	31	106	(*)	31	127	15.2	65	31	119	(*)	55		
950	31	562	22.9	76	31	584	20.8	81	31	507	12.6	61	30	600	15.6	56	31	543	(*)	31	506	14.0	55	31	557	(*)	55		
900	31	1,029	20.3	71	31	1,049	17.9	76	31	1,048	10.6	54	30	1,056	12.6	59	31	968	9.6	75	31	1,016	12.3	46	31	1,010	(*)	55	
850	31	1,322	17.3	72	31	1,536	14.9	76	31	1,522	8.5	49	30	1,533	10.3	56	31	1,463	8.7	64	31	1,492	8.4	54	31	1,482	8.4	57	
800	31	2,038	14.4	69	31	2,048	12.2	72	31	2,022	6.4	46	30	2,037	9.0	42	31	1,963	7.5	53	31	1,993	7.7	34	31	1,980	5.1	63	
750	31	2,581	12.2	55	31	2,592	10.3	55	31	2,555	4.1	44	30	2,572	5.8	35	31	2,500	5.1	47	31	2,527	5.0	29	31	2,507	1.1	63	
700	31	3,157	8.9	54	31	3,159	7.8	46	31	3,107	1.1	41	30	3,132	4.4	31	3,052	1.4	46	31	3,082	2.1	31	3,055	-2.9	67			
650	31	3,767	5.6	48	31	3,768	4.5	38	31	3,704	-1.9	36	30	3,732	1.1	31	3,649	-2.7	51	31	3,679	-1.5	33	31	3,640	-6.8	67		
600	31	4,418	1.9	42	30	4,414	0.8	—	31	4,332	-5.1	36	30	4,372	-2.7	31	4,275	-6.7	44	31	4,308	-5.7	35	31	4,259	-10.5	63		
550	31	5,113	-2.0	41	29	5,109	-3.3	—	31	5,013	-9.0	35	29	5,058	-6.8	30	4,954	-11.0	38	31	4,986	-10.0	—	31	4,927	-14.5	64		
500	31	5,866	-6.7	—	29	5,856	-7.9	—	31	5,743	-13.8	—	28	5,801	-11.1	30	5,657	-15.6	38	31	5,714	-14.6	—	31	5,640	-19.1	57		
450	30	6,683	-11.9	—	29	6,674	-13.2	—	31	6,545	-19.2	—	27	6,603	-16.6	—	30	6,469	-21.2	—	28	6,520	-19.8	—	28	6,426	-24.2	—	
400	30	7,573	-17.9	—	27	7,553	-19.7	—	31	7,401	-25.6	—	27	7,477	-22.6	—	30	7,321	-27.2	—	28	7,382	-26.1	—	28	7,268	-30.5	—	
350	30	8,556	-26.4	—	27	8,528	-27.4	—	31	8,355	-32.2	—	26	8,443	-29.8	—	30	8,270	-33.6	—	27	8,333	-32.9	—	27	8,205	-37.4	—	
300	30	9,656	-33.8	—	27	9,619	-35.4	—	31	9,419	-41.1	—	26	9,523	-37.6	—	29	9,330	-41.1	—	27	9,402	-40.0	—	26	9,253	-44.1	—	
250	30	10,906	-44.0	—	26	10,859	-45.4	—	31	10,635	-49.6	—	25	10,758	-46.2	—	28	10,553	-49.0	—	27	10,625	-47.9	—	24	10,458	-49.4	—	
200	30	12,364	-56.0	—	22	12,308	-57.1	—	30	12,070	-57.7	—	24	12,215	-55.2	—	27	11,996	-55.3	—	26	12,071	-55.3	—	23	11,894	-54.7	—	
175	30	13,199	-62.6	—	21	13,149	-62.7	—	28	12,969	-60.1	—	18	13,071	-59.0	—	27	12,842	-57.7	—	22	12,916	-58.1	—	21	12,744	-56.8	—	
150	21	14,142	-68.6	—	15	14,078	-67.8	—	31	13,873	-61.4	—	14	14,033	-62.9	—	24	13,798	-59.7	—	17	13,875	-58.6	—	19	13,718	-57.9	—	
125	8	15,225	-74.2	—	9	15,135	-71.9	—	19	14,995	-64.9	—	11	16,348	-64.3	—	13	14,904	-61.8	—	7	15,003	-60.7	—	10	14,861	-60.0	—	
100	—	—	—	—	—	—	—	—	—	—	—	—	—	5	16,330	-63.0	—	—	—	—	—	—	—	—	—	—	—	—	—
Surface	Oklahoma City, Okla. (990.6 mb.)			Omaha, Nebr. (977.7 mb.)			Phoenix, Ariz. (971.7 mb.)			Pittsburgh, Pa. (974.9 mb.)			Portland, Maine (1,016.0 mb.)			Rapid City, S. Dak. (900.9 mb.)			St. Paul, Minn. (987.0 mb.)										
Surface	31	391	16.8	66	31	308	13.3	75	31	330	18.5	56	31	282	13.6	67	31	20	7.5	90	31	981	4.3	31	225	10.6	73		
1,000	31	125	(*)	—	31	117	(*)	—	31	89	(*)	—	31	167	(*)	—	31	182	11.2	76	31	116	(*)	31	115	(*)	66		
950	31	567	17.7	—	31	621	13.2	60	31	540	22.3	39	31	606	14.1	61	31	583	11.2	64	31	543	(*)	31	547	10.2	64		
900	31	1,027	15.5	61	31	1,004	11.9	65	31	1,002	19.2	37	31	1,056	11.6	61	31	1,031	9.3	61	31	968	(*)	31	962	8.1	64		
850	31	1,510	13.2	59	31	1,481	9.8	61	31	1,490	15.5	39	31	1,531	8.8	59	31	1,503	7.1	55	31	1,454	8.8	31	1,462	6.1	62		
800	31	2,019	11.3	51	31	1,983	7.4	65	31	2,000	11.6	43	31	2,030	6.3	55	31	2,000	4.8	61	31	1,945	1.8	31	1,957	4.0	59		
750	31	2,500	8.5	50	31	2,517	4.9	60	31	2,543	7.8	41	31	2,561	3.8	54	31	2,529	2.8	46	31	2,473	0.4	31	2,484	1.4	59		
700	31	3,124	5.5	41	31	3,073	1.9	53	31	3,102	4.7	37	31	3,115	1.2	45	31	3,081	0.2	42	31	3,016	-3.4	31	3,033	-1.3	55		
650	31	3,728	2.1	39	31	3,669	-2.1	54	31	3,708	-1.2	—	31	3,712	-1.5	40	31	3,676	-2.8	42	31	3,600	-5.6	31	3,627	-4.6	54		
600	31	4,368	-1.5	37	31	4,298	-6.1	54	31	4,342	-2.5	—	31	4,340	-5.1	44	31	4,302	-6.2	43	31	4,224	-9.2	31	4,248	-8.2	50		
550	31	5,054	-6.1	35	31	4,975	-10.0	50	31	5,029	-7.0	—	31	5,021	-8.9	—	31	4,978	-10.6	43	31	4,900	-13.9	31	4,919	-12.4	50		
500	31	5,794	-10.9	38	31	5,695	-15.3	46	31	5,764	-12.2	—	31	5,750	-13.7	—	30	5,706	-14.8	—	30	5,605	-18.4	—	31	5,640	-17.4	52	
450	30	6,604	-16.3	39	31	6,488	-20.6	45	31	6,572	-17.7	—	31	6,551	-19.2	—	30	6,533	-20.1	—	30	6,392	-23.5	—	31	6,420	-22.4	—	
400	30	7,574	-22.4	—	29	7,344	-26.5	—	31	7,432	-24.0	—	28	7,410	-24.9	—	29	7,357	-26.2	—	29	7,241	-29.4	—	31	7,278	-28.1	—	
350	30	8,441	-29.1	—	29	8,295	-33.2	—	31	8,393	-30.9	—	28	8,366	-31.9	—	29	8,309	-33.6	—	28	8,176	-35.7	—	30	8,222	-34.7	—	
300	29	9,527	-37.0	—	29	9,362	-40.4	—	31	9,469	-38.6	—	28	9,437	-39.7	—	27	9,363	-41.7	—	27	9,237	-41.9	—	28	9,274	-42.2	—	
250	28	10,763	-45.6	—	28	10,590	-48.1	—	30	10,697	-47.4	—	26	10,670	-48.1	—	27	10,576	-49.8	—	25	10,451	-48.4						

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during October 1946—Continued

Standard pressure surface (mb.)	Tampa, Fla. (1,015.5 mb.)				Tatoosh Island, Wash. (1,012.8 mb.)				Toledo, Ohio (995.6 mb.)				Washington, D. C. (1,017.1 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	0	22.2	83	30	31	9.3	88	31	191	12.4	71	29	25	14.5	76
1,000	30	143	22.0	81	30	136	9.0	82	31	153	(*)	60	29	168	15.5	67
950	30	501	19.8	78	30	566	6.9	77	31	587	14.1	60	29	606	13.5	64
900	30	1,053	16.8	80	30	1,003	4.6	72	31	1,042	11.5	58	29	1,056	10.9	62
850	30	1,538	14.0	75	30	1,467	2.3	68	31	1,518	8.8	56	29	1,532	8.7	56
800	30	2,049	12.0	62	30	1,954	0.0	64	31	2,017	6.5	48	29	2,031	6.4	48
750	30	2,593	10.0	47	30	2,476	-2.6	63	31	2,547	3.8	43	29	2,565	4.2	42
700	30	3,159	7.6	36	30	3,013	-5.6	55	31	3,102	0.9	39	29	3,117	1.5	39
650	30	3,768	4.4	34	30	3,596	-3.3	53	31	3,698	-2.4	30	29	3,713	-1.4	40
600	30	4,413	0.7	34	30	4,206	-12.6	47	31	4,326	-5.9	29	29	4,345	-5.0	29
550	30	5,106	-3.2	29	30	4,860	-9.9	49	31	5,003	-9.6	29	29	5,024	-8.9	29
500	30	5,854	-7.7	29	30	5,566	-21.4	29	31	5,724	-13.7	29	29	5,756	-13.6	29
450	29	6,671	-13.1	29	30	6,344	-26.2	29	31	6,530	-19.1	29	29	6,555	-19.0	29
400	29	7,550	-19.6	29	29	7,178	-31.5	29	31	7,394	-25.1	29	29	7,418	-24.9	29
350	29	8,257	-27.1	29	30	8,111	-38.0	31	31	8,349	-32.4	29	29	8,375	-32.0	29
300	29	9,616	-35.5	29	29	9,145	-45.2	29	29	9,426	-40.2	27	27	9,446	-40.2	27
250	27	10,860	-44.8	21	21	10,374	-51.4	26	26	10,678	-48.2	27	27	10,697	-48.7	27
200	26	12,313	-55.7	13	11	11,700	-54.0	19	19	12,156	-56.8	25	25	12,168	-57.3	25
175	25	13,150	-61.4	8	8	12,616	-53.5	15	15	13,015	-60.1	21	21	12,955	-61.1	21
150	18	14,099	-66.7	13	13	13,997	-63.8	18	18	13,918	-64.3	18	18	13,918	-64.3	18
125	9	15,192	-70.7	7	7	15,236	-67.5	7	7	15,116	-67.1	9	9	15,084	-68.2	9

<sup>1</sup> Data not yet received.

\* Temperature and relative humidity data for this level are not available or are available only for certain days. See note entitled "Change in Summarization of Radiosonde Data," p. 6, in the January 1946 issue of the MONTHLY WEATHER REVIEW.

NOTE.—All observations scheduled between 0300 and 0500 G. C. T. except at Mazatlan and Merida, where they are taken near 0200 G. C. T.

"Number of observations" refers to those of dynamic height only. (In a few cases temperature or humidity data may be missing for one or more standard pressure surfaces of some observations.) Relative humidity data are not published for standard pressure surfaces having a corresponding mean temperature below -20°C.

All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the values occurring below the operating range of the humidity element. For explanation of the adjustment see article entitled "Curve Method for Obtaining Monthly Means of Relative Humidity," p. 241, MONTHLY WEATHER REVIEW, December 1944.

None of the means included in these tables are based on less than 15 observations at the surface or 5 observations at a standard pressure level.

## LATE REPORTS FOR HAVANA, CUBA

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during October 1946—Continued

## STATIONS AND MEAN SURFACE PRESSURES

Standard Pressure Surface (mb.)	January 1 (.... mb.)			February (1,013.0 mb.)			March (1,011.2 mb.)			April (1,011.8 mb.)			May (1,009.2 mb.)			June (1,011.7 mb.)			July (1,011.4 mb.)					
	Number of observations	Dynamic height	Temperature	Number of observations	Dynamic height	Temperature	Number of observations	Dynamic height	Temperature	Number of observations	Dynamic height	Temperature	Number of observations	Dynamic height	Temperature	Number of observations	Dynamic height	Temperature	Number of observations	Dynamic height	Temperature	Number of observations	Dynamic height	Temperature
Surface	27	50	22.0	84	31	50	22.3	80	30	50	23.6	78	31	50	24.6	85	29	50	24.9	88	30	50	26.0	84
1,000	27	163	21.4	83	31	147	21.9	79	30	152	23.1	77	31	131	24.4	84	29	152	24.8	87	30	151	25.8	82
950	27	613	18.4	82	31	596	19.0	75	30	601	20.6	75	31	584	22.7	77	29	606	22.6	81	30	606	23.1	78
900	27	1,069	15.6	81	31	1,055	16.1	74	30	1,064	18.0	68	31	1,050	19.8	75	29	1,073	19.7	78	30	1,073	20.4	73
850	27	1,552	12.9	74	31	1,540	13.7	66	30	1,552	15.3	61	31	1,541	16.8	73	29	1,564	16.5	78	30	1,565	17.2	74
800	27	2,060	11.0	56	31	2,049	11.1	55	29	2,064	12.7	54	31	2,056	13.7	72	29	2,079	13.7	73	30	2,081	14.0	71
750	27	2,601	8.8	41	31	2,501	9.2	42	29	2,604	9.9	44	31	2,602	10.2	71	29	2,625	10.6	67	30	2,627	10.8	65
700	27	3,165	6.0	36	31	3,156	6.6	31	29	3,174	6.8	40	31	3,170	7.3	62	29	3,193	7.2	45	30	3,196	7.5	59
650	27	3,769	2.9	31	31	3,762	3.2	29	30	3,784	3.5	33	30	3,783	4.1	57	29	3,806	3.8	68	29	3,809	4.1	54
600	27	4,414	-0.5	31	31	4,404	-0.8	28	28	4,424	-0.2	33	30	4,424	0.7	51	29	4,446	0.2	68	29	4,450	0.3	54
550	27	5,108	-4.5	31	31	5,097	-4.8	27	27	5,119	-3.8	30	30	5,120	-3.2	48	29	5,145	-3.5	64	29	5,148	-3.5	50
500	27	5,847	-9.4	31	31	5,837	-9.4	27	27	5,862	-7.9	30	30	5,866	-7.8	47	29	5,889	-7.8	58	29	5,893	-7.7	50
450	26	6,660	-15.5	31	31	6,650	-15.5	27	27	6,683	-13.2	30	30	6,684	-13.0	44	28	6,712	-12.6	59	29	6,713	-13.1	51
400	25	7,531	-22.2	31	31	7,521	-22.5	27	27	7,562	-19.6	30	30	7,567	-18.9	52	28	7,592	-18.4	59	29	7,593	-19.1	55
350	25	8,495	-29.6	31	31	8,485	-30.3	25	25	8,541	-27.0	30	30	8,547	-26.0	32	28	8,575	-25.4	37	29	8,573	-26.1	37
300	25	9,574	-38.3	31	31	9,560	-39.5	25	25	9,633	-35.5	30	30	9,643	-34.4	32	28	9,673	-34.1	39	29	9,669	-34.5	35
250	24	10,802	-47.4	31	31	10,784	-47.8	24	24	10,875	-45.3	30	30	10,892	-44.2	28	28	10,922	-44.3	33	29	10,916	-44.5	33
200	23	12,258	-55.0	29	29	12,230	-55.7	22	22	12,330	-55.6	29	29	12,348	-55.5	32	27	12,375	-56.3	33	27	12,367	-56.5	33
175	23	13,098	-58.5	26	26	13,080	-58.8	21	21	13,175	-60.0	26	26	13,193	-60.9	24	24	13,219	-62.2	22	24	13,203	-63.1	22
150	16	14,064	-62.8	17	17	14,051	-63.5	18	18	14,125	-63.5	16	16	14,153	-65.8	15	15	14,158	-68.2	12	17	14,138	-68.5	12
125	12	15,168	-69.1	7	7	15,180	-66.8	14	14	15,236	-67.5	7	7	15,248	-68.0	8	8	15,220	-72.5	7	7	15,219	-71.3	7

<sup>1</sup> Insufficient observations.

TABLE 1.—Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during 1946

Standard pressure surface (mb.)			August (1,010.6 mb.)			September (1,008.2 mb.)			Standard pressure surface (mb.)			August (1,010.6 mb.)			September (1,008.2 mb.)		
			Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height				Number of observations	Dynamic height	Temperature	Number of observations	Dynamic height	Temperature
Surface	29	50	25.7	83	15	50	25.2	87	600	29	5,802	-7.9	55	22	5,800	-7.7	65
1,000	29	144	25.7	82	25	123	25.5	84	450	29	6,714	-12.7	57	22	6,690	-12.4	63
950	29	601	23.3	77	25	579	23.1	81	400	28	7,505	-18.4	57	21	7,573	-18.1	58
900	29	1,067	20.5	75	25	1,045	20.2	77	350	28	8,579	-25.4	21	8,556	-25.2	—	
850	29	1,560	17.5	67	24	1,537	17.3	75	300	28	9,678	-34.1	19	9,667	-34.0	—	
800	29	2,076	14.3	65	24	2,053	14.2	72	250	28	10,927	-44.4	19	10,906	-44.1	—	
750	29	2,623	11.1	61	24	2,600	10.9	70	200	28	12,383	-56.2	17	12,366	-56.3	—	
700	29	3,193	8.0	56	24	3,170	7.6	69	175	28	13,219	-69.2	11	13,190	-69.3	—	
650	29	3,806	4.6	56	24	3,784	4.1	67	150	19	14,142	-88.2	5	14,140	-87.1	—	
600	29	4,450	0.8	57	23	4,427	0.3	69	125	8	15,203	-72.0	—	—	—	—	—
550	29	5,149	-3.3	55	23	5,121	-3.7	66	—	—	—	—	—	—	—	—	—

TABLE 2.—Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.), during October 1946. Directions given in degrees from north ( $N=360^\circ$ ,  $E=90^\circ$ ,  $S=180^\circ$ ,  $W=270^\circ$ ). Velocities in meters per second

Altitude (meters) m. s. l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,630 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (512 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charles-ton, S. C. (16 m.)			Cincin-nati, Ohio (180 m.)			Denver, Colo. (1,627 m.)			El Paso, Tex. (1,198 m.)					
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity									
		Surface	31	173	5.4	31	219	2.6	30	74	4.7	28	287	5.1	29	270	3.3	30	312	2.2	30	118	4.0	27	245	2.8	17	202	2.9	31	31	1.0	31	347	1.8	31	219	2.0				
500	31	181	6.6	—	—	—	30	51	1.5	—	—	—	29	281	4.3	30	310	2.8	29	137	5.8	26	247	7.6	16	233	8.1	29	31	1.6	29	251	2.2	—	—	31	229	3.5				
1,000	31	193	6.4	—	—	—	30	51	1.5	—	—	—	28	284	7.6	23	264	7.2	30	302	3.3	26	149	5.0	25	248	7.9	16	262	8.4	26	14	2.0	28	236	2.4	—	—	31	229	3.5	
1,500	30	193	6.4	—	—	—	28	58	1.6	28	284	7.6	23	265	8.9	22	265	8.6	30	302	3.8	24	161	4.0	22	262	8.5	11	273	10.6	25	5	1.7	25	252	2.9	31	306	1.5	31	232	4.2
2,000	28	209	7.2	31	226	4.2	28	78	1.5	26	285	8.9	22	265	8.6	30	302	3.8	24	161	4.0	22	262	8.5	11	273	11.2	20	6	1.5	24	266	3.1	31	241	6.0	31	241	6.0			
2,500	27	227	7.7	31	238	5.4	25	280	1.5	23	279	9.3	21	262	8.6	29	294	4.4	22	167	3.1	17	262	8.4	10	273	11.2	20	6	1.5	24	266	3.1	31	241	6.0	31	241	6.0			
3,000	26	241	8.5	31	246	7.0	24	303	1.5	23	279	10.4	20	262	11.2	29	289	5.3	20	164	2.5	15	271	10.9	19	344	1.7	22	281	4.3	28	238	4.2	31	246	8.3						
4,000	24	250	12.1	29	258	13.0	24	277	4.5	19	275	10.2	17	268	13.0	20	294	9.3	13	91	0.9	27	258	9.2	19	319	3.7	18	204	4.0	25	256	9.4	29	249	13.0	24	249	13.0			
5,000	23	254	14.8	26	263	17.8	22	285	6.5	16	276	10.7	14	262	12.4	20	291	12.6	12	281	2.8	—	—	—	15	318	4.9	13	267	7.3	21	264	14.5	28	248	14.2	24	248	14.2			
6,000	22	257	15.5	24	264	20.0	20	284	7.1	14	270	10.1	11	277	12.3	18	290	11.9	12	281	2.9	—	—	—	15	315	6.4	10	265	8.5	21	260	18.2	25	246	16.8	20	251	21.5	14	250	27.0
8,000	16	250	19.3	19	256	21.8	16	277	12.0	10	284	11.5	—	—	—	—	—	—	10	267	5.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10,000	11	255	23.0	16	244	27.4	11	287	11.6	—	—	—	—	—	—	—	—	—	19	260	20.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (375 m.)			Little Rock, Ark. (88 m.)			Medford, Ore. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (194 m.)			New York, N. Y. (15 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity			
		Surface	30	363	1.1	31	300	3.6	30	33	1.8	28	268	3.8	30	41	3.7	29	202	4.0	31	142																	

TABLE 3.—Maximum free-air wind velocities (m. p. s.) for different sections of the United States based on pilot balloon observations during October 1946

Section	Surface to 2,500 meters (m. s. l.)				2,501 to 5,000 meters (m. s. l.)				Above 5,000 meters (m. s. l.)							
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	
Northeast <sup>1</sup>	38.4	sw.	1,917	18	Portland, Maine	45.4	nw.	3,537	3	Portland, Maine	72.0	w.	9,317	19	Portland, Maine.	
	38.4	w.	634	1	Buffalo, N. Y.	55.5	wws.	5,000	18	Huntington, W. Va.	78.4	wws.	17,726	7	Richmond, Va.	
East-Central <sup>2</sup>	43.7	wws.	1,856	18	Greensboro, N. C.	28.2	w.	5,000	12	Birmingham, Ala.	57.0	w.	14,473	14	Birmingham, Ala.	
Southeast <sup>3</sup>	31.7	se.	1,146	8	Charleston, S. C.	48.4	w.	4,951	26	Sault Ste. Marie, Mich.	92.1	n.	10,033	31	Green Bay, Wis.	
North-Central <sup>4</sup>	35.1	sw.	606	30	Alpena, Mich.	62.0	wws.	2,769	26	Sioux City, Iowa	79.3	w.	14,366	2	Springfield, Mo.	
Central <sup>5</sup>	53.5	wws.	2,500	26	Sioux City, Iowa	42.0	nw.	5,000	12	Memphis, Tenn.	60.0	w.	11,423	12	Fort Worth, Tex.	
South-Central <sup>6</sup>	36.0	ssw.	2,500	29	Amarillo, Tex.	49.0	w.	4,450	25	Tatoosh Island, Wash.	78.0	nnw.	11,051	5	Medford, Oreg.	
Northwest <sup>7</sup>	34.4	wws.	2,350	23	Pocatello, Idaho	43.4	sw.	5,000	20	Denver, Colo.	82.0	n.	8,942	10	Salt Lake City, Utah.	
West-Central <sup>8</sup>	38.7	s.	2,273	1	Rock Springs, Wyo.	48.0	sw.	4,780	29	Albuquerque, N. Mex.	80.8	wws.	10,065	31	Tucson, Ariz.	
Southwest <sup>9</sup>	28.0	sw.	2,465	2	Las Vegas, Nev.											

<sup>1</sup> Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.

<sup>2</sup> Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.

<sup>3</sup> South Carolina, Georgia, Florida, and Alabama.

<sup>4</sup> Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.

<sup>5</sup> Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.

<sup>6</sup> Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.

<sup>7</sup> Montana, Idaho, Washington, and Oregon.

<sup>8</sup> Wyoming, Colorado, Utah, northern Nevada, and northern California.

<sup>9</sup> Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

#### RIVER STAGES AND FLOODS FOR OCTOBER 1946

C. R. JORDAN

Precipitation during October was above normal over most of the country west of the Mississippi River except a narrow strip along western California and the southern border of the Plains, Texas, Oklahoma, Arkansas, Louisiana, and southern Missouri. It was also wetter than usual in the Carolinas and northern Georgia, and in Pennsylvania and northern New York. Accumulations were much above the usual amounts over a broad strip of the west-central portion of the Great Plains, extending from North Dakota to the Texas Panhandle and over most of Nevada and western Utah. Less than half the usual rainfall was received in west-central Texas, the central Gulf coastal area, along the middle and north Atlantic coasts, and in northern Michigan.

Unusually high floods for this season of the year occurred in Texas, Oklahoma, and Kansas. Highest stages of record were reached at a few headwater stations.

**Missouri Basin**—Flooding occurred along the Republican River from Bloomington, Nebr., to Clay Center, Kans.; the smaller tributaries of the Republican River; the Saline River; and the Smoky Hill River at Abilene, Kans.

At Bloomington and Guide Rock, Nebr., the Republican reached the highest stages since 1935, but overflow along the stream in Kansas was light, generally not more than a foot above bankfull. Beaver Creek, Sappa Creek, and Prairie Dog Creek, all tributaries of the Republican, overflowed moderately. Damage in the Republican Basin was estimated at \$386,000, most of which was in Franklin, Webster, and Nuckolls Counties, Nebr.

Rather severe overflow of the Solomon River was reported above Beloit, Kans., with moderate flood stages extending downstream. The crest at Beloit was 8.93 feet above flood stage, on the 11th. Damage along the Solomon River was set at \$66,000.

One of the highest stages of record occurred on the Saline River at Tescott, Kans., where a crest 3.35 feet

above flood stage was reached on the 14th. Estimated damage in this basin was \$25,000.

The Smoky Hill River overflowed slightly at Abilene, Kans. Overflow was due largely to water from the Solomon and Saline Rivers; practically no damage occurred in this basin.

*Arkansas Basin.*—Record-breaking floods occurred in the smaller streams of the Panhandle sections of Texas and Oklahoma as a result of heavy and general rains that occurred during the period October 4-10. Precipitation ranged from 1 to more than 8 inches, with the heaviest rain falling in the period from the 4th to the 6th. Considerable damage to crops, livestock, and property occurred in the upper North Canadian River Basin.

Press and other reports indicate that unusually high water levels were reached in the headwaters of the North Canadian River. The uppermost station operated by the Weather Bureau, Woodward, Okla., reported a crest of 9.8 feet at midnight, October 9-10, the fourth highest stage of record since 1919. Rainfall was light east of Woodward and the flood peak was reduced rapidly as it moved downstream. It is interesting to note that the time of crest travel from Woodward to El Reno, Okla., was 138 hours; it normally takes from 48 to 72 hours.

*West Gulf of Mexico Drainage.*—Heavy rain along the lower central section of the Guadalupe River produced severe flood conditions in the vicinity of Victoria, Tex. The United States Geological Survey reports that a stage of 31.6 feet was reached at the Victoria gaging station. This exceeded slightly the record flood of 1936 at Victoria. Water entered the town and spread over wide sections of farm lands. There was also some overflow of the Nueces River at Three Rivers, Tex., and the San Antonio River at Goliad, Tex.

The Rio Grande exceeded flood stage by 0.2 foot at Mercedes, Tex., on the 12th as a result of locally heavy rain, but little or no damage was reported.

## FLOOD STAGE REPORT FOR OCTOBER 1946

[All dates in October unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest <sup>1</sup>	
		From—	To—	Stage	Date
<b>ATLANTIC SLOPE DRAINAGE</b>					
Waccamaw: Conway, S. C.	Feet 7	Aug. 31	Sept. 7	Feet 7.6	Sept. 3-4
<b>MISSISSIPPI SYSTEM</b>					
<i>Missouri Basin</i>					
Solomon:					
Beloit, Kans.	18	7	13	26.9	11
Minneapolis, Kans.	26	14	15	27.0	14
Niles, Kans.	24	15	16	26.4	16
Saline: Tescott, Kans.	25	12	14	28.4	14
Smoky Hill: Abilene, Kans.	22	16	18	23.4	17
Republican:					
Bloomington, Nebr.	8	8	9	9.0	6
		11	11	8.2	11
Guide Rock, Nebr.	10	7	13	11.1	7
				11.6	10
Hardy, Nebr.	11	12	13	12.4	12
		10	10	11.2	10
Scandia, Kans.	10	12	13	10.6	13
Concordia, Kans.	8	13	13	8.2	13
Clay Center, Kans.	15	8	14	15.6	10
				16.2	14
<i>Arkansas Basin</i>					
North Canadian:					
Woodward, Okla.	5	7	12	9.8	9-10
Canton, Okla.	9	9	13	11.0	9
				13.6	12
Yukon, Okla.	11	10	18	11.4	10
				14.5	16
Canadian: Union City, Okla.	6	8	10	7.6	8
Arkansas: Great Bend, Kans.	8	9	12	7.8	10
				9.0	11
<b>WEST GULF OF MEXICO DRAINAGE</b>					
San Antonio: Goliad, Tex.	35	1	3	42.5	2
		17	18	37.1	18
Guadalupe: Victoria, Tex.	21	Sept. 29	Sept. 30	21.6	Sept. 30
		16	18	21.6	17
Nueces: Three Rivers, Tex.	27	12	19	42.7	13
Rio Grande: Mercedes, Tex.	21	12	12	21.2	12

<sup>1</sup> Provisional.

## CLIMATOLOGICAL DATA FOR OCTOBER 1946

## CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS

[For description of tables and charts, see Review, January 1943, p. 15]

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and

lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Section	Temperature								Precipitation							
	Section average	Departure from the normal	Monthly extremes				Section average	Departure from the normal	Greatest monthly				Least monthly		Amount	
			Station	Highest	Date	Station			Station	Amount	Station	Amount	Station	Amount		
Alabama	65.2	+0.4	Geneva	91	10	Scottsboro	30	14	In.	3.58	Hayneville	.00	In.	.00	In.	
Arizona	58.4	-2	Ehrenberg	100	2	Fort Valley	12	31	In.	2.74	2 Stations	.00	In.	.00	In.	
Arkansas	63.7	+.9	5 stations	94	8	2 stations	25	12	In.	7.18	Lake City	.50	In.	.50	In.	
California	56.6	-3.8	Greenland Ranch	100	10	Gem Lake	6	28	In.	10.48	5 stations	.00	In.	.00	In.	
Colorado	45.1	-3.8	2 stations	92	2	Westcliff	-11	11	In.	5.20	Aroa	.20	In.	.20	In.	
Florida	74.1	+1.1	Winter Haven	95	11	Marianna	43	13	2.74	7.26	Apalachicola	.30	In.	.30	In.	
Georgia	64.2	-.7	3 stations	91	11	Tallapoosa	29	14	3.61	7.67	Fort Gaines	1.24	In.	1.24	In.	
Idaho	41.5	-5.7	Nampa	85	1	Landmark	3	29	2.62	8.13	Swan Falls	.66	In.	.66	In.	
Illinois	59.7	+.8	Paris	93	1	2 stations	26	12	3.18	7.58	Chester	.85	In.	.85	In.	
Indiana	59.2	+.2	Crawfordsville	93	1	2 stations	23	13	2.71	4.69	Petersburg	1.23	In.	1.23	In.	
Iowa	55.7	+3.9	Ottumwa	89	5	Sibley	20	18	3.39	6.20	Le Claire (River Station)	1.06	In.	1.06	In.	
Kansas	58.4	+1.1	2 stations	92	12	2 stations	25	18	4.22	9.02	Independence	.59	In.	.59	In.	
Kentucky	59.6	+1.2	Pikeville	92	5	2 stations	27	13	2.38	4.74	Russellville	.75	In.	.75	In.	
Louisiana	69.5	+1.0	10 stations	91	1	Tallulah	31	13	1.94	6.09	Belle Chasse	.05	In.	.05	In.	
Maryland-Delaware	59.4	+3.2	Fort Meade, Md.	90	6	Oakland, Md.	24	14	2.75	4.43	Bridgeville, Del.	1.00	In.	1.00	In.	
Michigan	53.6	+4.8	Wayne	92	6	Garnet	13	20	2.06	9.25	Onaway	.29	In.	.29	In.	
Minnesota	46.6	+.1	Albert Lea	82	5	Roseau	13	13	3.68	6.64	Thief River Falls	1.06	In.	1.06	In.	
Mississippi	65.0	+.5	2 stations	92	1	Vicksburg Airport	30	13	1.83	4.90	Biloxi	.62	In.	.62	In.	
Missouri	61.1	+3.3	Nevada	92	7	2 stations	24	12	3.02	6.98	Bunker	.67	In.	.67	In.	
Montana	39.6	-5.5	Glendive	95	1	Summit	-7	27	2.45	7.16	Turner	.25	In.	.25	In.	
Nebraska	50.6	-1.2	Haigler	92	2	Harrison	10	11	4.11	9.68	Potter	.67	In.	.67	In.	
Nevada	47.2	+3.5	Overton	93	1	2 stations	9	28	1.72	4.95	2 stations	.07	In.	.07	In.	
New England	52.9	+3.4	New Bedford, Mass.	90	6	Lemington, Vt.	15	21	2.17	6.70	Hatchville, Mass.	.19	In.	.19	In.	
New Jersey	59.0	+4.3	4 stations	90	1	Sussex	24	14	1.49	2.59	Charlotteburg	.86	In.	.86	In.	
New Mexico	53.6	-.1	Rodeo	92	1	Elizabethtown	-1	11	1.58	6.00	Burlington	.00	In.	.00	In.	
New York	54.5	+4.5	Port Jervis	90	6	2 stations	17	20	3.52	8.24	Orient	.46	In.	.46	In.	
North Carolina	60.8	+.8	Monroe	91	7	Transau	24	14	3.60	6.49	Manteo	.82	In.	.82	In.	
North Dakota	40.1	-4.0	Govla	91	1	Belcourt	2	12	2.23	4.04	Powers Lake	.92	In.	.92	In.	
Ohio	57.6	+4.0	Ottawa	93	5	Mansfield	22	13	3.09	5.43	Franklin	1.95	In.	1.95	In.	
Oklahoma	64.5	+1.9	Webbers Falls	96	6	Kenton	26	12	2.03	7.99	Pontotoc	.00	In.	.00	In.	
Oregon	44.4	-5.4	Brookings	90	11	Chemult	4	28	3.20	15.43	Redmond	.43	In.	.43	In.	
Pennsylvania	56.0	+3.4	Bethlehem	92	7	3 stations	24	14	3.50	5.50	Philadelphia C. O.	1.22	In.	1.22	In.	
South Carolina	64.0	+.2	Walterboro	90	31	Walhalla	32	13	4.84	8.44	Walterboro	2.50	In.	2.50	In.	
South Dakota	45.2	-3.5	Hot Springs	89	1	Rosalia	10	16	3.82	6.78	Ardmore	.75	In.	.75	In.	
Tennessee	60.5	+.7	2 stations	90	1	Custer	8	8	3.24	4.81	McMinnville	1.35	In.	1.35	In.	
Texas	69.4	+1.7	3 stations	94	14	3 stations	29	11	3.00	15.43	El Paso	.41	In.	.41	In.	
Utah	45.5	-3.7	Moab	84	2	Silver Lake (Brighton)	5	11	4.09	13.08	Mexican Hat	.31	In.	.31	In.	
Virginia	59.1	+1.7	Lincoln	90	7	Burkes Garden	24	13	2.62	6.53	Cape Henry	.80	In.	.80	In.	
Washington	45.8	-4.2	Richland	83	12	Rosalia	10	16	3.82	15.11	Kennecwick	.50	In.	.50	In.	
West Virginia	57.2	+2.5	2 stations	92	1	4 stations	20	12	2.67	5.37	Madison	.71	In.	.71	In.	
Wisconsin	52.2	+3.9	4 stations	86	1	2 stations	15	13	2.63	5.92	West Bend	.95	In.	.95	In.	
Wyoming	40.3	-3.5	Lagrange	91	1	3 stations	3	10	2.24	6.72	Deaver	.16	In.	.16	In.	
Alaska, Sept. 1946	43.4	-.7	Edna Bay	76	1	Allakaket	-1	30	2.82	9.47	Sheep Mountain	.08	In.	.08	In.	
Hawaii	73.8	+.3	Waianae	93	1	Haleakala R. S.	39	1	4.56	24.00	Pohakulon	.00	In.	.00	In.	
Puerto Rico	77.3	-.3	Manati	97	9	Garzas	57	7	9.07	19.78	Toa Baja	3.35	In.	3.35	In.	

<sup>1</sup> Other dates also.

## CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR OCTOBER 1946

District and station	Elevation of instruments		Pressure				Temperature of the air						Precipitation			Wind			Average cloudiness, tenths	Total snowfall in. in. at end of month	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms													
	Barometer above sea level	Thermometer above ground	Anemometer above ground	Station	Sea level	Departure from normal	Mean	Maximum	Departure from normal	Mean maximum	Minimum	Date	Mean minimum	Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Total	Departure from normal	Greatest in 24 hours	Days with 0.01 inch or more	Average hourly velocity	Prevailing direction	Miles per hour	Date	Clear days	Partly cloudy days	Cloudy days							
	ft.	ft.	ft.	ft.	ft.	ft.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	in.	in.	in.	mi.	Direction	mi.	in.	in.	in.										
NEW ENGLAND	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	%	in.	in.	in.	mi.	Direction	mi.	in.	in.	in.										
Eastport	75	67	85	1,015.0	1,018.6	+2.7	54.8	+3.8	80	60	32	20	44	31	411	42	1.32	-2.0	1.24	8	9.2	32	sw.	18	15	7	9	4.4	0.0	0.0	0.0				
Greenville, Maine	1,070	6	41	970.3	1,019.3	-46.3	7	-1.8	81	7	60	17	21	33	45	580	38	2.53	-1.0	.86	9	4.1	20	-----	12	11	9	11	0.0	0.0	0.0	0.0			
Portland, Maine <sup>1</sup>	103	5	43	1,015.2	1,019.0	+1.7	51.0	-2.3	84	64	26	22	38	39	436	42	86	1.49	-1.6	1.29	6	7.5	28	w.	31	15	8	8	4.5	0.0	0.0	0.0			
Concord <sup>1</sup>	289	4	45	1,006.8	1,019.6	+2.0	51.0	-2.3	82	64	26	20	36	46	436	41	84	.93	-1.9	.61	7	6.0	28	nw.	19	10	13	8	5.3	0.0	0.0	0.0			
Burlington <sup>1</sup>	403	6	51	1,003.4	1,018.3	-1.0	52.2	-3.0	82	64	24	20	40	37	393	43	82	2.45	+1.1	1.23	9	7.8	33	s.	25	10	10	11	5.7	T	0.0	0.0			
Boston <sup>1</sup>	124	33	62	1,014.9	1,019.6	+2.0	58.4	-4.8	86	7	68	38	20	49	29	234	50	86	.34	-2.8	.19	310.0	34	ne.	18	19	5	7	3.9	0.0	0.0	0.0			
Nantucket <sup>1</sup>	12	4	34	1,019.6	1,020.0	+2.4	56.2	-2.0	80	7	65	36	21	48	31	275	50	86	.37	-3.0	.59	211.7	34	s.	18	19	5	9	4.3	0.0	0.0	0.0			
Block Island <sup>1</sup>	26	11	46	1,019.0	1,020.0	+2.4	58.4	-3.5	82	68	36	25	48	36	226	46	80	.16	-3.0	.14	3	7.6	31	sw.	18	15	8	8	4.3	0.0	0.0	0.0			
Providence <sup>1</sup>	159	46	60	1,014.2	1,020.0	+2.4	58.4	-6.2	88	69	35	22	48	36	204	48	76	.63	-2.7	.29	9	6.8	19	se.	31	10	10	11	5.2	0.0	0.0	0.0			
Hartford <sup>1</sup>	159	5	44	1,014.2	1,020.0	+2.0	56.6	-5.4	85	66	31	22	44	38	278	48	85	.90	-2.6	.37	6	6.9	26	n.	31	10	10	11	5.2	0.0	0.0	0.0			
New Haven <sup>1</sup>	107	5	39	1,019.6	1,020.0	+2.0	56.8	+5.0	82	6	36	22	47	36	264	48	76	.63	-2.7	.29	9	6.8	19	se.	12	14	9	8	4.8	0.0	0.0	0.0			
MIDDLE ATLANTIC																																			
Albany <sup>1</sup>	97	26	40	1,015.6	1,019.3	+1.3	54.2	+4.9	86	6	68	27	21	41	44	345	44	80	1.77	-6.1	.06	6	7.2	s.	35	w.	18	11	10	10	4.7	T	0.0	0.0	
New York	314	415	454	1,008.5	1,019.6	+1.6	61.9	+5.6	87	6	70	45	1	54	25	142	49	70	.79	-2.7	.28	6	13.0	48	nw.	19	15	6	10	4.3	0.0	0.0	0.0		
Harrisburg <sup>1</sup>	374	30	41	1,006.4	1,019.0	+1.7	58.4	+3.6	83	60	36	14	48	34	222	48	80	3.33	+1.6	.96	10	6.6	31	nw.	12	10	9	12	5.4	0.0	0.0	0.0			
Philadelphia <sup>1</sup>	114	5	57	1,015.9	1,020.0	+1.7	62.4	+4.6	87	6	71	45	14	54	28	125	51	82	1.22	-1.6	.35	8	7.5	21	s.	12	13	7	11	4.6	0.0	0.0	0.0		
Reading <sup>1</sup>	323	47	306	1,008.5	1,020.3	+1.7	58.4	+4.4	85	6	68	33	14	46	36	267	52	80	2.14	-9.7	.77	7	5.4	28	n.	33	11	11	11	4.7	T	0.0	0.0		
Scranton <sup>1</sup>	805	72	104	990.9	1,020.0	+1.7	56.7	+4.8	85	6	68	33	14	46	36	267	52	80	2.14	-9.7	.77	7	5.4	28	n.	31	10	11	10	4.7	T	0.0	0.0		
Atlantic City <sup>1</sup>	52	37	172	1,018.0	1,020.0	+1.7	61.2	+4.3	81	31	70	45	1	55	22	128	54	82	1.44	-1.8	.96	6	15.6	48	ne.	43	ne.	10	16	5	10	4.3	0.0	0.0	0.0
Trenton <sup>1</sup>	100	89	107	1,012.9	1,019.6	-6.0	55.5	+4.9	86	6	70	42	22	51	33	170	50	74	1.23	-1.6	.35	8	8.0	24	n.	24	ne.	8	13	6	12	4.8	0.0	0.0	0.0
Baltimore <sup>1</sup>	123	100	215	1,015.9	1,020.0	+1.7	62.2	+4.0	85	31	71	44	15	53	28	134	51	78	2.59	-3.3	.64	9	8.8	33	s.	33	12	15	9	7	4.0	0.0	0.0	0.0	
Washington <sup>1</sup>	112	56	100	1,016.3	1,020.3	+1.7	62.0	+4.6	88	7	73	40	15	51	35	138	51	76	2.50	-3.8	.81	10	6.1	34	n.	12	12	5	11	4.8	0.0	0.0	0.0		
Cape Henry <sup>1</sup>	18	8	54	1,018.6	1,019.3	-6.5	55.5	+3.4	85	31	72	46	2	60	35	134	51	76	2.50	-2.2	.53	8	13.7	43	n.	43	ne.	12	15	7	9	4.5	0.0	0.0	0.0
Lynchburg <sup>1</sup>	886	4	50	995.6	1,020.0	+1.7	59.2	+2.0	81	30	70	34	2	45	38	196	48	78	1.41	-1.7	.91	7	8.2	31	ne.	31	ne.	8	13	6	12	5.0	0.0	0.0	0.0
Norfolk <sup>1</sup>	91	80	125	1,016.6	1,020.0	+1.7	64.8	+2.3	84	31	72	46	2	58	36	126	52	76	1.26	-1.8	.77	11	9.6	26	n.	12	10	9	12	5.4	0.0	0.0	0.0		
Richmond <sup>1</sup>	144	11	52	1,014.2	1,019.6	+1.0	62.2	+2.6	85	31	73	42	14	51	33	131	52	85	2.15	-3.7	.63	9	7.1	26	sw.	18	12	9	10	4.8	0.0	0.0	0.0		
SOUTH ATLANTIC																																			
Asheville <sup>1</sup>	2,253	77	92	941.1	1,020.7	+1.7	58.4	+3.1	81	30	72	32	2	45	43	214	49	84	5.60	+2.9	4.06	4	6.1	25	nw.	12	14	8	9	4.8	0.0	0.0	0.0		
Charlotte <sup>1</sup>	779	63	86	991.9	1,020.0	+1.7	62.0	+3.8	81	30	72	40	2	52	33	111	51	77	6.6	+3.5	4.36	5	6.5	26	ne.	18	12	9	10	4.9	0.0	0.0	0.0		
Greensboro <sup>1</sup>	886	6	56	988.5	1,020.7	+1.7	62.0	+6.0	82	30	72	46	2	58	38	166	50	82	2.00	-6.1	.87	7	7.9	30	sw.	18	12	9	10	5.0	0.0	0.0	0.0		
Hatteras <sup>1</sup>	11	5	50	1,018.3	1,018.6	+6.6	67.4	+1.5	87	28	72	55	24	63	14	22	61	84	3.64	-1.3	.71	7	12.7	34	s.	34	ne.	13	14	6	11	5.1	0.0	0.0	0.0
Raleigh <sup>1</sup>	376	5	69	1,006.4	1,020.0	+1.7	62.6	+6.5	85	7	74	38	2	52	36	115	52	86	4.17	+1.3	1.82	8	6.6	28	n.	28	sw.	18	16	8	7	4.1	0.0	0.0	0.0
Wilmington <sup>1</sup>	72	73	107	1,016.6	1,020.0	+1.0	66.0	+0.7	81	31	74	48	2	58	25	53	59	88	4.52	+1.2	4.44	7	8.0	28	n.	28	sw.	18	14	8	11	4.1	0.0	0.0	0.0
Charleston <sup>1</sup>	48	11	92	1,016.9	1,018.6	+6.8	68.2	+4.4	81	18	75	53	13	61	21	20	58	88	2.68	-8.1	.9														

## CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR OCTOBER 1946—Continued

District and station	Elevation of instruments		Pressure				Temperature of the air						Precipitation			Wind			Total snowfall Snow, sleet, and ice on ground at end of month	Number of days with thunder- storms															
	Barometer above sea level	Thermometer above ground	Barometer above sea level	Thermometer ground	Anemometer above ground	Station	Sea level	Departure from normal	Mean	Departure from normal	Maximum	Date	Mean maximum	Minimum	Date	Mean minimum	Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Total	Departure from normal	Greatest in 24 hours	Days with 0.01 inch or more	Average hourly velocity	Prevailing direction	Miles per hour	Maximum velocity							
	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.	ft.						
<b>OHIO VALLEY AND TENNESSEE—CON.</b>																																			
Evansville <sup>1</sup>	431	11	40	1,003.1	1,019.0	-4	59.6	+2.6	86	6	74	32	13	45	41	185	48	80	1,77	-1.0	.99	6	6.0	s.	33	s.	18	12	9	10	4.8	.0	0	3	
Indianapolis <sup>1</sup>	823	5	54	988.2	1,018.3	0	59.0	+4.9	88	6	72	30	13	46	40	212	45	70	1,54	.86	8.7	s.	40	w.	18	11	11	9	4.9	.0	0	1			
Terre Haute <sup>1</sup>	575	68	149	997.6	1,019.0	-1	61.4	+4.2	88	6	73	37	13	50	35	152	46	77	2,20	-5	.94	5	8.7	s.	32	sw.	18	14	7	10	4.8	.0	0	2	
Cincinnati <sup>1</sup>	627	11	51	996.6	1,019.6	+1	60.2	+5.5	87	6	73	35	13	50	39	155	48	82	2,35	-2	.96	5	4.7	e.	24	nw.	18	10	11	10	5.1	.0	0	0	
Columbus <sup>1</sup>	822	90	110	990.2	1,019.6	+1	60.6	+4.4	87	6	71	34	13	48	38	187	45	75	2,20	-3	.91	6	7.8	s.	43	s.	18	16	5	10	4.4	.0	0	0	
Dayton <sup>1</sup>	1,003	6	55	983.1	1,019.3	-1	58.6	+4.8	87	6	70	33	13	47	35	220	44	70	2,34	-2	1.10	6	9.6	s.	40	w.	18	13	10	8	4.9	.0	0	0	
Elkins <sup>1</sup>	1,947	4	45	951.6	1,021.0	+1	73.6	+2.5	84	7	70	25	14	38	48	359	43	84	2,83	-1	1.24	7	5.1	nw.	22	w.	18	13	6	12	5.1	.0	0	0	
Parkersburg <sup>1</sup>	637	77	84	986.7	1,020.0	+1	4.4	-3.6	77	7	73	31	18	46	44	181	46	74	2,04	-4	.96	7	5.0	se.	26	w.	18	13	6	12	5.1	.0	0	0	
Pittsburgh <sup>1</sup>	842	39	54	989.5	1,020.0	+1	4.8	-58.8	+4.7	82	7	70	35	13	48	35	207	45	72	3,47	+1.0	1.04	11	8.4	s.	34	w.	18	12	8	11	4.9	.0	0	0
<b>LOWER LAKES</b>																																			
Buffalo <sup>1</sup>	768	34	96	990.5	1,018.6	+1	66.6	+5.5	85	5	67	36	20	47	31	272	46	78	3,72	+4	1.55	7	12.2	s.	35	sw.	30	10	9	12	5.1	.0	0	0	
Canton	448	10	61	1,001.7	1,018.0	-1	61.9	+4.4	81	6	63	21	21	41	37	404	42	76	2,64	+3	2.18	11	8.1	w.	29	w.	30	11	8	12	5.6	.0	0	0	
Oswego	335	71	85	1,005.1	1,017.6	-0	56.0	+6.7	78	4	65	34	21	47	30	286	46	78	3,90	+6	1.60	9	8.9	se.	29	w.	1	15	6	10	5.1	T	0	0	
Rochester <sup>1</sup>	523	5	59	999.7	1,019.3	+1	67.8	+5.5	85	5	68	32	13	45	36	218	46	80	3,79	+1	1.29	10	8.1	sw.	30	s.	25	9	10	12	5.7	.6	0	0	
Syracuse <sup>1</sup>	596	5	57	997.3	1,019.3	+1	64.6	9	+5.4	83	5	68	28	21	42	42	324	45	84	4,78	+1	6.70	10	8.1	sw.	30	s.	25	9	10	12	5.7	.6	0	0
Erie <sup>2</sup>	714	57	81	993.2	1,019.3	+1	67.9	+1.1	64.9	5	68	40	21	50	21	217	47	80	3,79	+7	2.56	8	9.0	se.	26	sw.	18	10	9	12	5.6	T	0	0	
Cleveland <sup>1</sup>	762	27	54	991.2	1,019.3	+1	53.8	+5.9	90	6	70	33	13	47	41	223	44	72	3,51	+7	1.54	8	9.2	s.	40	w.	18	13	7	11	4.9	.0	0	0	
Sandusky	629	5	57	995.9	1,019.3	+0	3.9	59.0	+4.7	83	6	70	34	13	48	32	204	44	74	2,02	-4	1.03	7	8.4	sw.	27	w.	18	15	9	7	4.2	.0	0	0
Toledo <sup>1</sup>	628	5	47	995.6	1,019.0	+1	47.2	+5.6	87	5	70	29	13	44	36	240	44	74	3,21	+6	2.21	8	7.1	sw.	27	w.	18	15	9	7	4.6	.0	0	2	
Fort Wayne <sup>1</sup>	857	5	33	986.8	1,018.3	-1	56.8	+4.1	89	6	70	29	13	43	44	262	44	74	3,21	+6	2.21	8	7.1	sw.	27	w.	18	15	9	7	4.6	.0	0	2	
Detroit <sup>1</sup>	730	5	78	992.2	1,019.0	+1	4.8	-58.2	+6.3	87	6	69	37	13	48	38	228	46	74	2,27	-1	1.03	7	8.8	sw.	26	nw.	18	13	7	11	5.0	.0	0	0
<b>UPPER LAKES</b>																																			
Alpena	609	5	89	994.6	1,017.0	+0	45.8	+4.7	82	5	60	30	20	42	34	441	42	79	53	-2	2.15	5	9.4	sw.	31	sw.	24	8	12	11	5.8	T	0	1	
Escanaba	612	51	72	992.9	1,015.2	-1	49.6	+3.6	74	30	57	26	13	42	31	477	42	78	2,27	-4	1.38	10	9.8	s.	30	ne.	16	10	7	14	6.1	.2	0	2	
Grand Rapids <sup>1</sup>	707	70	244	991.5	1,017.6	+3	57.8	+6.6	85	5	68	37	13	47	33	242	44	76	2,24	-6	1.17	7	11.1	s.	37	w.	30	12	6	13	5.4	.0	0	1	
Lansing <sup>2</sup>	878	5	59	985.8	1,018.0	-1	57.5	+5.4	81	5	67	32	13	44	33	293	42	70	2,14	-3	1.20	7	7.9	sw.	25	s.	24	11	6	14	5.5	.0	0	0	
Marquette	734	44	73	987.5	1,014.9	-1	45.1	+4.4	85	5	60	30	19	42	33	440	40	72	1,82	-9	.87	8	9.1	s.	30	sw.	23	6	10	15	6.5	T	0	5	
Sault Ste. Marie <sup>1</sup>	614	11	52	993.6	1,016.6	+3	48.7	+5.7	79	5	59	24	20	39	31	502	41	84	2,27	-8	.81	12	10.7	se.	35	sw.	30	6	7	8	6.5	T	0	2	
Chicago <sup>1</sup>	673	5	36	992.2	1,016.9	-4	58.7	+6.0	87	5	67	34	12	47	37	245	45	72	2,24	+3	1.45	5	8.5	s.	26	s.	24	12	8	11	5.1	.0	0	3	
Green Bay <sup>1</sup>	617	5	32	993.2	1,015.9	-7	53.2	+4.7	82	6	64	25	13	43	31	375	43	76	1,49	-1	0.65	7	8.4	s.	26	w.	30	11	9	11	5.6	.0	0	0	
Milwaukee <sup>1</sup>	681	33	66	991.5	1,016.6	-3	55.5	+5.6	84	5	66	31	13	44	36	321	46	78	1,79	-6	.76	8	12.1	sw.	36	sw.	30	11	7	13	5.7	T	0	1	
Duluth <sup>1</sup>	1,133	5	47	971.9	1,013.9	-2	45.4	+1.3	68	2	54	22	13	37	31	611	36	82	5.40	+3	1.26	14	10.9	w.	34	nw.	10	12	3	14	5.8	T	0	4	
<b>NORTH DAKOTA</b>																																			
Fargo <sup>1</sup>	940	6	47	978.0	1,013.2	-2	47.4	-4	78	2	53	22	12	34	33	675	36	80	2,12	+4	1.11	8	12.0	s.	33	s.	2	5	10	16	6.8	T	0	0	
Bismarck <sup>1</sup>	1,677	5	43	952.3	1,013.5	-5	41.9	-2	70	2	51	18	12	30	42	748	32	74	2,04	+1	1.02	10	10.5	nw											

## CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR OCTOBER 1946—Continued

District and station	Elevation of instruments		Pressure			Temperature of the air						Precipitation			Wind			Average cloudiness, tenths		Total snowfall															
			Barometer above sea level	Thermometer above ground	Anerometer above ground	Station	Sea level	Departure from normal	Maximum	Date	Mean maximum	Minimum	Date	Mean minimum	Greatest daily range	Total degree days	Mean temperature of the dew point	Total	Departure from normal	Greatest in 24 hours	Days with 0.01 inch	Average hourly velocity	Prevailing direction	Maximum velocity	Date	Clear days	Partly cloudy days	Cloudy days							
	ft.	ft.	ft.	ft.	ft.	ft.	ft.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	in.	in.	in.	in.	mi. per hour	Direction	Date	0-10	in.	in.	in.	in.	in.						
MIDDLE SLOPE																																			
Denver <sup>2</sup>	5,292	106	113	835.1	1,012.5	-3.8	49.4	58.0	+1.4	83	2	61	22	11	38	39	488	30	56	.77	-3	.31	10	7.3	s.	32	ne.	9	9	16	5.1	6.0	.0	0	
Pueblo <sup>1</sup>	4,600	5	36	854.4	1,012.5	-3.1	51.4	+2	83	2	68	20	11	35	51	420	30	56	.60	0	.57	4	7.8	nw.	49	sw.	29	15	9	7	4.3	.6	.0	0	
Concordia <sup>1</sup>	1,392	50	58	984.1	1,014.2	-2.7	57.4	+1.5	81	3	67	32	12	48	33	263	48	77	3.05	+1.1	.54	11	9.0	s.	26	sw.	29	12	6	13	5.5	.0	.0	4	
Dodge City <sup>1</sup>	2,509	5	58	925.2	1,012.5	-4.1	56.0	-1	82	3	66	31	18	46	34	299	47	79	4.56	+3.3	2.14	8	17.3	s.	48	nw.	24	11	7	13	5.5	.0	.0	2	
Wichita <sup>1</sup>	1,358	6	64	965.8	1,013.9	-3.0	61.0	+2.4	82	3	71	36	18	51	33	167	48	70	4.32	+1.7	2.01	10	16.2	se.	42	s.	29	8	8	15	6.1	.0	.0	3	
Oklahoma City <sup>1</sup>	1,214	10	47	971.6	1,014.9	-2.0	65.4	+3.9	85	17	76	38	12	55	39	85	52	70	1.22	-1.6	.98	7	10.7	s.	23	s.	13	10	9	12	5.5	.0	.0	2	
Tulsa <sup>1</sup>	674	10	60	990.9	1,014.9	...	65.4	+3.8	86	8	78	38	12	53	36	86	50	64	1.50	-1.8	2.77	8	11.6	s.	34	nw.	17	11	12	8	5.1	.0	.0	6	
SOUTHERN SLOPE																																			
Abilene <sup>1</sup>	1,738	4	59	953.3	1,013.5	-2.8	68.9	66.0	+3.6	88	17	80	36	12	58	34	42	54	60	.85	-1.6	.69	5	17.3	s.	41	s.	29	9	11	11	5.7	.0	.0	1
Amarillo <sup>1</sup>	3,676	5	42	887.9	1,012.4	-3.5	59.2	+3.4	84	26	71	34	11	48	40	200	48	76	5.73	+4.1	2.66	7	15.4	s.	45	s.	29	16	9	10	9.5	.0	.0	5	
Del Rio	900	63	71	979.7	1,012.5	-2.7	73.3	+3.8	87	24	81	44	12	66	27	19	62	73	2.03	-8	.73	8	9.8	se.	24	se.	5	3	15	13	6.5	.0	.0	1	
Roswell	3,566	75	85	891.3	1,011.9	-2.7	62.5	+3.0	85	29	77	34	12	48	43	111	44	58	1.31	-1	.76	5	7.5	s.	28	s.	16	15	7	9	4.6	.0	.0	5	
SOUTHERN PLATEAU																																			
El Paso <sup>1</sup>	3,778	29	85	884.9	1,010.5	-2.7	66.2	+4.2	86	20	79	43	11	53	36	38	40	42	.41	-4	.28	4	9.4	s.	34	se.	14	13	12	6	4.4	.0	.0	2	
Albuquerque <sup>1</sup>	5,314	5	45	836.8	1,011.5	...	53.3	-3	80	2	60	31	11	43	38	273	34	45	1.02	+2	.54	7	10.1	s.	44	s.	29	16	9	6	3.9	.0	.0	5	
Flagstaff <sup>1</sup>	6,907	36	51	789.7	1,015.6	+2.4	45.4	-1.5	70	25	60	20	31	30	46	608	28	57	2.10	+7	.96	8	sw.	14	11	6	4.1	.0	.0	0	0				
Phoenix <sup>1</sup>	1,107	39	87	972.6	1,011.2	-7	67.6	-3.0	89	14	81	42	30	54	38	24	44	50	.05	-4	.03	3	6.0	c.	21	w.	16	9	6	3.9	.0	.0	1		
Tucson <sup>1</sup>	2,555	5	39	924.1	1,011.0	-6.5	9.9	-2.8	89	1	80	44	7	52	41	51	42	49	.82	+5	.48	5	se.	14	9	8	4.1	.0	.0	0	0				
Yuma	142	9	54	1,006.1	1,011.2	-3	70.4	-2.9	94	1	85	45	30	56	37	14	40	40	T	-3	0	5.9	n.	23	n.	24	25	4	2	2.1	.0	.0	0		
MIDDLE PLATEAU																																			
Reno <sup>1</sup>	4,527	20	52	862.5	1,016.9	+1.3	45.5	-3.0	78	25	64	13	29	28	53	604	28	58	.51	+2	.26	6	7.1	n.	32	nw.	17	12	10	9	4.7	T	.0	0	
Winnebago <sup>1</sup>	4,330	5	56	868.3	1,017.3	-3	43.8	-4.5	72	13	57	14	31	31	44	659	31	65	2.93	+2.3	1.73	12	6.6	sw.	26	nw.	5	7	13	11	6.0	3.0	T	3	
Modena <sup>1</sup>	5,473	10	46	832.4	1,013.9	-7	44.2	-3.8	72	21	57	22	30	32	44	647	5.91	+5.2	1.84	9	9.5	w.	38	sw.	16	18	6	7	3.9	T	0	3			
Salt Lake City <sup>1</sup>	4,227	32	58	866.2	1,014.6	-1	74.6	-4.2	73	1	56	27	11	37	35	573	34	64	3.61	+2.3	1.12	13	9.1	se.	49	nw.	1	9	7	15	6.3	T	T	5	
Grand Junction <sup>1</sup>	4,602	60	68	858.8	1,015.2	-4	40.6	-3.2	76	1	62	24	11	38	37	477	30	54	.82	-1	.30	7	6.2	se.	31	sw.	20	7	13	11	5.5	.0	.0	5	
NORTHERN PLATEAU																																			
Baker <sup>1</sup>	3,471	36	54	895.7	1,017.6	-1	40.1	-5.6	66	13	52	17	28	30	39	739	28	70	.76	-2	.21	11	5.7	se.	24	nw.	5	9	8	14	6.0	.4	.0	0	
Boise <sup>1</sup>	2,730	5	49	919.7	1,016.3	-1	74.5	-2.4	68	25	56	22	28	34	31	615	32	62	1.11	-1	.42	10	9.3	se.	38	nw.	25	7	9	15	6.3	.6	.0	0	
Pocatello <sup>1</sup>	4,478	5	31	862.2	1,016.3	-1	0.44	-2.5	71	1	53	25	11	34	35	654	31	64	2.16	-5	.71	15	11.1	sw.	35	sw.	1	3	11	17	7.1	4.0	.0	0	
Spokane <sup>1</sup>	1,029	27	42	946.8	1,018.0	0	44.2	-4.1	64	13	55	19	28	33	35	643	34	68	2.18	+2	.58	10	7.8	ne.	29	s.	22	5	8	18	6.7	T	.0	1	
Walla Walla <sup>1</sup>	991	57	65	981.0	1,017.3	-1	0.50	-2.9	72	13	59	29	28	42	35	447	1.39	51	14	5.4	s.	26	w.	24	6	9	16	6.5	.0	.0	0				
Yakima <sup>1</sup>	1,076	58	67	973.3	1,017.3	...	45.8	-4.4	74	12	61	19	28	31	40	500	34	68	.70	+1	.36	7													
NORTH PACIFIC COAST																																			
North Head	211	5	55	1,010.8	1,018.3	+1	750.6	-2.3	60	10	55	39	28	46	14	445	48	88	7.76	+2.8	1.66	21	14.0	nw.	50	se.	21	4	7	20	7.1	.0	.0	0	
Seattle <sup>1</sup>	125	90	321	1,013.5	1,016.6	-1	0.51	-2.6	68	5	57	35	28	45	19	434	44	81	3.47	+6	.89	15	9.1	se.	38	sw.	22	3	8	20	7.6	.0	.0	0	
Tacoma	194	172	201	1,010.8	1,018.0	0	74.9	-1.3	63	24	55	32	28	43	20	490	3.31	0	.99	16	8.5	s.	33	sw.	24	5	9	17	6.7	.0	.0	1			
Tatooch Island <sup>1</sup>	86	9	61	1,014.2	1,017.3	-1	0.48	-1.0	57	3	53	40	31	45	10	498	41	86	5.46	-2.7	1.34	19	13.0	e.	47	s.	21	7	10	14	6.4	.0	.0	0	
Medford <sup>1</sup>	1,329</																																		

## SEVERE LOCAL STORMS FOR OCTOBER 1946

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
New York State, northern section.	Oct. 1946 1				\$100,000	Heavy snow	Rain changed to wet, heavy snow in early hours and continued all day; depth ranged up to 22 inches. Rail traffic delayed; many secondary roads blocked, and numerous automobiles stalled on highways. Trees broken; utility lines disrupted for extended periods. \$100,000 damage estimated, for Watertown, N. Y., only. Total damage for area undetermined.
Nebraska, south-central counties.	3-7					Heavy rains	Rain measured from 6 to 7.70 inches in some sections, causing flooding in lowlands. Some damage from washing, and loss in corn and root crops where water was standing.
Rogers, N. Mex.	5	P. m.				Severe wind	Much damage to farm buildings; small loss in crops.
North Dakota, northwest portion.	5-8					Snow	9 inches of snow fell. All roads open by the 8th, and telephone service resumed after 3 days.
Florida	6-9			0	5,200,000	Hurricane	This hurricane was one that quickly lost force only a few hours before striking. Loss in citrus fruits, \$5,000,000; property damage, about \$200,000. Tides along Florida west coast were unusually high and caused much of damage. Town of Everglades was inundated to depths ranging from $1\frac{1}{2}$ to 3 feet. Parts of Punta Gorda and Fort Myers were flooded as well as low beaches and islands from Tampa Bay to the Keys. Some few beach cottages were undermined or damaged or destroyed. Considerable damage to piers, bulkheads, sea-walls, and houseboats. As the storm moved northward through the State, some communication and power lines were downed by falling trees and limbs, but loss was not great. Slight damage was reported along the Atlantic coast around Titusville, Fla., to Charleston, S. C., mostly from high tides.
South Dakota, north-central counties.	7					Rain, sleet, and snow.	Rain changing to sleet and snow caused spotted damage to power and telephone lines and broke down trees and caused loss in unharvested crops.
South Carolina	8	Entire day				Tropical disturbance	Storm accompanied by heavy to excessive rains and winds reaching gale force in some areas. Damage negligible except that some open cotton in fields was blown down and beaten to the ground lowering the quality of staple.
Martin and Howard Counties, Tex.	9	7:02 p. m.	11		110,000	Hail, wind, and rain	Loss in crops, \$100,000; property damage, principally in Big Spring, \$10,000.
Goodland, Okla.	17	5:30-6 p. m.	100	0	25,000	Tornado	Loss to crops in stack or stored in barns, \$7,000; several farm buildings damaged; school buildings destroyed, \$18,000.
Greenwood, Ind.	18	4:35 a. m.	33	0	50,000	do	Buildings and airplanes damaged; trees and poles down; path southwest to northeast and 1 mile long.
Muskogee, Okla.	14	2:30 a. m.			50,000	Electrical	School building struck by lightning and burned.
Kalispell, Mont., and vicinity.	26	1 a. m.-9 p. m.				Heavy snow	Power and communication lines disrupted between Kalispell and Polson, Mont. During this storm snowfall measured 11 inches, establishing a new October record for Kalispell. Mists on highways plentiful, but none serious.

<sup>1</sup> Miles instead of yards.

## LATE STORM REPORTS FOR SEPTEMBER 1946

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Phillipsburg, Kans., and vicinity.	September 1946 2	9:30 a. m.-12:10 p. m.	880-1,320		\$10,000	Heavy hail and wind	Loss in crops; 3 airplanes at Phillipsburg Airport damaged; path 5 miles long.
Eskridge to Alma, Kans., and vicinities.	2	About noon		0	2,000	Tornado	Path extended from southwest of Eskridge to north of Alma. Large barn 6 miles west of Eskridge destroyed; path 20 miles long.
Geary County, Kans.	3	5 p. m.	12-3		15,000	Heavy hail	Path extended through center of Geary County from north to south. Much loss in crops; path 20 miles long.
Nemaha and Brown Counties, Kans.	3-4	10 p. m.-2:30 a. m.	128		240,000	Hail and wind	Damage especially severe in Pottawattamie, Hiawatha, Seneca, and Norton, Kans. Roofs damaged on about 1,410 buildings in Brown County. Estimate about equally divided between 2 counties, with \$160,000 crop loss and \$80,000, property damage; path 40 miles long.
Pottawatomie County, Kans., eastern and south-central portion.	4	9:30 a. m.-3 p. m.	115		65,000	Wind and rain	Telephone service between Topeka and Manhattan interrupted for several hours. Corn flattened; crop loss, \$40,000; path 30 miles long.
Chapman, Kans., and vicinity.	4	1-2 p. m.	16		10,000	Heavy hail	Globes of street lamps and window panes broken; roofs damaged; some crop loss; path 12 miles long.
Toronto, Kans., and vicinity.	4	3:30-4:30 p. m.	120		5,500	High winds	Trees blown over; telephone and power lines damaged; much corn flattened; path 25 miles long.
Lincoln County, Kans., west-central and northern portions.	4	P. m.	14		50,000	Hail and wind	Leaves stripped from trees and growing crops; many small buildings blown over.
Lime Springs, Riceville, and Jamestown, Iowa.	5	P. m.				Hail, wind, heavy rain, and flood.	Farm buildings damaged, crops flattened, trees blown over, and loss in corn and soybeans from hail. Heavy rain caused local flooding; several bridges washed out.
Ridgeway, Decorah, Nordness, Waukon, and New Albin, Iowa.	5	P. m.			34,000	Wind, heavy rain, and flood.	Trees blown over and crops flattened. Heavy rain caused local flooding; railroad grades and bridges washed out. Flood loss along upper Iowa River and tributaries estimated at \$34,000.
Emmetsburg, Iowa	5	do				Wind	Trees and cornfields leveled.
Northwood, Long Grove, Davenport, McCausland, Mason City, and Clinton, Iowa.	5	do				Wind, electrical, and heavy rain.	Streets and basements flooded; small creeks overflowed. Wind caused minor damage; some farm buildings burned.
Buckhannon, W. Va., vicinity of.	10	12:15-12:23 p. m., E. S. T.	1		7,500	Wind and rain	10 airplanes outside of hangar at Lewis Airport caught in sudden, severe windstorm and damaged.
Menlo to Monument, Kans.	13	6 p. m.	do		45,000	Hail and wind	Crop loss small, not estimated; sheds and grain bins blown over path 25 miles long.

See footnote at end of table.

## LATE STORM REPORTS FOR SEPTEMBER 1946—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
San Antonio, Tex.	September 15 <sup>1946</sup>					Rain and flood.....	4.85 inches of rain, the heaviest precipitation for a 24-hour period since the Sept. 10, 1931, flood was recorded. Streets in San Antonio inundated. Creeks in the west and northwest sections of the city sent Woodlawn Lake waters over embankments, stalled traffic in some areas. Fire, police, and sheriff's departments swamped with emergency calls.
Mableton, Ga., 1 mile south..	22	3 p. m., E. S. T.	75	0	10,000	Tornado.....	This tornado dipped to earth, causing damage within a small area, then lifted. It remained on the ground over an area of about 500 yards in a sparsely settled section; most of the damage occurred locally soon after the strike between Mableton and Austell. A home completely demolished; several small buildings badly damaged. Number of trees blown down or uprooted, causing damage to telephone and power lines.
Independence, Vinton, Key-stone, and Belle Plaine, Iowa.	22					Rain and flood.....	Rain exceeding 4 inches flooded streets and basements and caused small creeks to overflow. Damage to highways, fences, crops, etc. Damage estimated in many thousands of dollars, with similar losses in all areas.
Danville Municipal Airport and Ringgold, Va.	24	9:15-10:00 p. m..	11		15,000	Wind and hail.....	Small house demolished; 6 or more roofs torn from houses; north side of cinder-block hangar destroyed; considerable loss in orchards. No hail damage reported.
Wakeeney, Kans., and vicinity.	28	5:30-6 a. m.....	12		10,000	Heavy hail.....	Loss mostly in crops; path 20 miles long.
Ontario, Pomona, Clare-mont, San Dimas, Cucamonga, and Chino, Calif., and vicinities.	29	1:50-3:05 p. m., P. S. T.	1		32,000	Thunderstorm and heavy rain.	Electric and telephone service interrupted for several hours. 3.25 inches of rain fell in 1 hour and 20 minutes near Alta Loma. Vineyards heavily covered with silt; much erosion; roads washed out, and traffic disrupted. 1 person killed when a car skidded.
Wayne County, N. Y.....	29	2-2:30 p. m.....	1 1/4-2		100,000	Hail.....	Storm struck two separate areas, one southeast of Marion with a path about 3 miles long, the other in North Rose with a path 4 miles long. Cabbage badly shredded, and loss in beans and apple crops.
Rockport, W. Va., vicinity of.	29	3-12 p. m., E. S. T.				Heavy rain and local flash flood.	Corn flattened.

<sup>1</sup> Miles instead of yards.

## SOLAR RADIATION AND SUNSPOT DATA FOR OCTOBER 1946

Explanations of the tables and references to descriptions of instruments, stations, and methods of observations and to summaries of data, are given in the MONTHLY WEATHER REVIEW, vol. 72, page 43, January 1944. A list of pyrheliometric stations is given on page 45 of the same REVIEW.

## SOLAR RADIATION OBSERVATIONS

[Gram calories per minute per square centimeter of normal surface]

Date	Sun's zenith distance										1:30 p. m.
	7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	
	75th mer. time	Air mass									
e	5.0	4.0	3.0	2.0	*1.0		2.0	3.0	4.0	5.0	e

## LINCOLN, NEBR.

	mb.	cal.	mb.								
Oct. 1	8.1					1.37	1.17	0.97	0.82	0.62	10.2
Oct. 2	8.1	0.75	0.85	0.98	1.17	1.35	1.08	.80	.67	.52	7.4
Oct. 3	9.4							1.05	.90	.75	13.7
Oct. 11	5.1	.96	1.09	1.20							5.3
Oct. 12	4.6	.62	.90	1.05	1.27						8.4
Oct. 14	6.9	.83	.92	1.05	1.22	1.44	1.25	1.08	.95	.84	10.2
Oct. 15	9.8				1.03	1.28					12.7
Oct. 19	8.7						1.44	1.22	1.07	.94	.83
Oct. 21	8.7						1.20	1.44	1.14	.95	.79
Oct. 22	9.1						1.09	1.24	1.41	1.23	1.06
Oct. 24	9.1							1.44	1.31	1.14	1.05
Oct. 25	6.9								1.06	.96	.86
Oct. 26	9.8										11.8
Oct. 28	16.4										12.3
Oct. 30	9.1	.92	1.03	1.11	1.29	1.47					18.3
Means	.82	.05	1.07	1.21	1.41	1.19	1.02	.88	.76	-----	-----
Departures	+.02	+.03	.00	-.06	-.06	-.05	-.04	-.05	-.06	-----	-----

## BLUE HILL, MASS.

Oct. 1	6.9	0.98	1.06								8.6
Oct. 2	6.7	.93	1.03	1.15	1.31						6.6
Oct. 3	6.7	.97	1.05	1.17		1.49	1.26	1.07	0.93	0.84	7.0
Oct. 4	9.6	.90	1.02	1.14	1.26	1.40	1.13	1.00	.85	.73	9.4
Oct. 5	13.2	.77	.87	1.02	1.22			1.11	.87	.76	14.7
Oct. 6	11.4	.92	1.00	1.14	1.24				.91	.76	.62
Oct. 7	11.3	.90	1.02	1.12	1.23	1.42		1.14	.92	.72	.62
Oct. 9	6.9							1.33	1.20	1.05	7.0
Oct. 11	11.8						1.49	1.25	1.10	.98	.87
Oct. 13	9.7			1.15	1.36	1.54	1.34	1.18	1.06	.97	7.2
Oct. 14	6.4	.98	1.04	1.11			1.25	1.06	.95	.81	7.1
Oct. 15	6.1	.73	.80	.93				.96	.79	.66	.57
Oct. 16	9.2	.63	.74	.90	1.09						8.5
Oct. 17	12.7	.36	.53	.73				.59			12.8
Oct. 19	7.7	1.00	1.09	1.22	1.35	1.49	1.30		1.00	.87	6.2
Oct. 20	6.4	.70	.83								7.2
Oct. 21	7.4	.83	.92		1.19	1.60	1.21	1.00	.90	.78	6.9
Oct. 22	6.6	.79	.90	1.05	1.24		1.24	.83	.68	.62	6.4
Oct. 23	7.4	.83	.94	1.09	1.25		1.19	.95	.78	.61	7.3
Oct. 24	7.2	.50	.61	.75				.78			11.8
Oct. 25	13.8						1.18	1.08	.88	.73	12.8
Oct. 27	17.0						1.18	1.02			17.3
Oct. 28	12.8	.42	.54								11.6
Oct. 31	14.7	.58	.69	.83							15.4
Means		.77	.90	1.02	1.18	1.49	1.18	.97	.86	.74	-----
Departures		-.09	-.06	-.06	-.05	+.09	-.03	-.06	-.06	-.05	-----

## BOSTON, MASS.

Oct. 3	7.2				1.20		1.24	0.98	0.72	0.71	7.2
Oct. 4	9.8	0.71	0.71	0.87	.85		1.25	1.01	.64	.53	9.4
Oct. 11	10.6				1.30		1.30				13.7
Oct. 16	9.8				1.11						9.1
Oct. 22	7.2				1.33						8.1
Oct. 23	8.1				1.02		.95	.68	.54	.42	9.4
Oct. 24	8.1				.44						11.0
Means		(.71)	(.71)	(.93)	1.04		1.18	.89	.63	.55	-----
Departures		+.06	.00	+.11	-.01		+.05	-.01	-.08	-.05	-----

## SOLAR RADIATION OBSERVATIONS

Date	Sun's zenith distance										1:30 p. m.
	7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	
	75th mer. time	Air mass									
		A. M.					P. M.				
	e	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e

## RATIO, BOSTON/BLUE HILL, ON COMPARABLE DATES

	-----	(.79)	(.70)	(.84)	.89	-----	.98	.88	.74	.75	-----

## CLIMAX, COLO.

	mb.	cal.	mb.								
Oct. 1											
Oct. 2											
Oct. 3											
Oct. 4											
Oct. 5											
Oct. 6											
Oct. 7											
Oct. 8											
Oct. 9											
Oct. 10											
Oct. 11											
Oct. 12											
Oct. 13											
Oct. 14											
Oct. 15											
Oct. 16											
Oct. 17											
Oct. 18											
Oct. 19											
Oct. 20											
Oct. 21											
Oct. 22											
Oct. 23											
Oct. 24											
Oct. 25											
Oct. 26											
Oct. 27											
Oct. 28											
Oct. 29											
Oct. 30											
Oct. 31											
Means		.77	.90	1.02							

TABLE 2.—*Daily totals and weekly means of solar radiation (direct+diffuse) received on a horizontal surface*  
 [Gram calories per square centimeter]

Date	Washington, D. C.	Lincoln, Nebr.	East Lansing, Mich.	New York, N. Y.	Fairbanks, Alaska	Columbia, Mo.	Boston, Mass.	Nashville, Tenn.	Twin Falls, Idaho	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Newport, R. I.	State College, Pa.	Put-in-Bay, Ohio	Davis, Calif.	Tooele, Utah	New Orleans, La.	Toronto, Canada	Boulder, Colo.	Soda Springs, Idaho	
1946	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	
Oct. 1	435	449	401	266	428	214	504	273	509	45	89	208	207	366	498	414	254	518	179	420	116	
Oct. 2	498	472	371	195	522	170	511	186	485	382	470	474	216	254	444	449	420	507	442	420	325	397
Oct. 3	450	317	350	411	332	222	504	352	455	255	394	349	446	423	392	424	351	426	456	367	276	334
Oct. 4	409	196	352	320	472	187	465	326	457	364	456	487	409	414	316	419	487	302	353	323	126	497
Oct. 5	418	171	338	334	482	68	477	313	450	114	220	382	404	414	404	398	500	334	327	271	241	458
Oct. 6	422	70	342	391	479	111	436	315	380	143	456	487	396	411	401	402	467	88	494	299	47	476
Oct. 7	402	214	318	295	472	149	440	299	381	165	455	456	405	381	400	390	407	405	406	326	152	344
Means	433	270	353	314	455	160	477	295	445	210	409	389	368	355	389	427	436	351	428	313	227	375
Departures	+107	-60	+88	+15	+30	+45	+132	+42	+112	-150	+22	-2	+62	+60	+123	+93	+32	-70	+47	+65	-107	-
Oct. 8	250	249	256	102	473	102	390	217	272	165	280	460	293	319	350	248	463	96	470	236	352	513
Oct. 9	42	212	341	193	462	47	222	297	355	375	434	470	388	314	94	247	455	480	441	100	430	480
Oct. 10	55	53	274	193	449	66	231	167	310	372	437	444	233	142	98	367	452	458	450	202	220	-
Oct. 11	214	276	72	206	454	73	282	322	39	388	424	458	397	376	115	122	445	473	303	180	422	468
Oct. 12	208	310	178	98	435	65	474	129	418	381	440	444	175	184	56	146	426	472	446	34	444	437
Oct. 13	443	120	209	402	432	116	445	331	437	372	433	400	403	416	390	389	464	478	291	392	456	-
Oct. 14	407	424	156	352	425	34	450	321	407	198	420	404	384	389	370	182	414	454	450	119	359	436
Means	231	225	212	221	447	72	356	255	230	321	406	445	324	304	214	243	435	414	434	167	371	465
Departures	-77	-71	-21	-66	+51	-17	+7	+27	+31	-20	+16	+64	+13	-5	-47	-22	+65	+47	+53	-37	+43	-
Oct. 15	397	282	296	320	368	99	389	247	411	193	321	420	320	349	375	352	243	431	450	254	326	348
Oct. 16	385	67	153	272	409	100	122	257	428	67	304	408	310	297	344	221	386	75	388	190	290	350
Oct. 17	297	29	27	317	402	55	37	175	244	145	426	441	307	296	106	30	297	170	405	28	66	195
Oct. 18	164	365	56	73	410	58	420	4	374	220	417	417	56	106	110	44	411	384	343	34	258	430
Oct. 19	405	386	232	365	428	40	42	307	241	362	279	352	389	377	366	349	401	411	326	263	403	-
Oct. 20	39	400	216	150	418	85	343	260	277	287	335	379	288	257	57	232	374	425	374	219	346	-
Oct. 21	202	381	284	305	378	32	225	286	328	218	316	403	359	351	129	338	237	370	413	218	386	315
Means	271	273	181	243	402	67	226	219	329	213	355	403	291	290	225	226	336	324	386	177	290	331
Departures	-13	-19	-25	-23	+38	-4	-100	+10	+32	-96	+14	+57	-50	+7	-4	-8	-9	-14	+27	-18	-33	-
Oct. 22	326	392	255	258	335	22	344	254	347	59	335	388	345	337	175	314	140	308	425	208	372	80
Oct. 23	356	111	218	211	315	67	347	224	115	260	365	363	338	322	223	307	218	350	136	396	403	-
Oct. 24	328	349	224	229	400	90	110	143	149	88	362	402	281	270	291	305	379	310	346	200	313	391
Oct. 25	266	371	132	273	381	36	402	218	67	314	305	380	302	286	241	52	368	402	271	24	304	300
Oct. 26	311	360	275	54	376	47	303	89	373	300	243	371	143	178	276	341	191	340	376	245	290	216
Oct. 27	317	242	248	122	138	42	335	184	341	119	63	86	300	257	313	320	306	95	318	228	265	-
Oct. 28	148	218	204	163	335	11	215	149	317	286	102	60	136	192	84	261	362	81	273	176	276	-
Means	263	292	222	187	326	45	307	180	244	204	253	203	264	263	220	265	309	250	337	174	327	292
Departures	+36	+14	+35	-39	-20	-14	+5	-7	+10	-71	-57	-32	+52	+42	+33	+45	-17	-52	+1	-18	+23	-

ACCUMULATED DEPARTURES ON OCT. 28, 1946

+4,438	-2,688	+3,157	-9,738	+5,726	-	+763	+1,428	-5,292	-	+770	-2,219	-2,618	+5,560	-	+11,060	-1,561	-	-	+1,610	-
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## ADDITIONAL DATA FOR FAIRBANKS, ALASKA, SEPTEMBER 1946

Week beginning—	Means	Departures
Sept. 3	130	-68
Sept. 10	158	-40
Sept. 17	170	+15
Sept. 24	216	+80

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR OCTOBER 1946

By LUCY T. DAY

[Equatorial Division, U. S. Naval Observatory]

[Communicated by the Superintendent, U. S. Naval Observatory.] All measurements and spot counts were made at the Naval Observatory from plates taken at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive toward the north. Areas are corrected for foreshortening and expressed in millionths of Sun's hemisphere. For each day under Mount Wilson group number, longitude, latitude, area of spot or group, and spot count, are included respectively: number of groups, assumed longitude of center of the disk, assumed latitude of center of the disk, total area of spots and groups, and total spot count.

Date	Eastern standard time	Mount Wilson group No.	Heliographic			Area of spot or group	Spot count	Plate quality	Observatory										
			Difference in longitude	Longitude	Latitude					(6)	(315)	(+6)	(624)	39					
1948 Oct. 1	h m 10 14	8224	•	•	-15	•	6	1	U. S. Naval.	8	10	33	8229	-45	270	-13	49	48	1
			-73	322	-15	77	12	3		8228	-22	293	-13	30	32	1	1	1	2
			-60	335	-15	64	12	2		8227	+37	352	-13	42	42	12	5	5	2
			-42	353	+19	43	12	2		8222	+39	354	+15	40	73	13	6	6	1
			-39	356	+18	40	61	10		8222	+40	356	+17	41	61	7	5	5	1
			-31	4	-17	39	388	1		8227	+41	366	-18	48	24	7	3	3	1
			+23	58	+12	23	6	2		8227	+47	2	-17	53	73	3	1	1	1
			+26	61	-43	55	6	1		8216	+50	5	-19	56	315	1	1	1	1
			+30	65	-22	41	24	2	Do.	(6)	(315)	(+6)	(624)	39					
			+46	81	-10	49	36	4		(6)	(302)	(+6)	671	28					
2	10 41	8203	+51	86	-18	56	24	5		9	11	10	8229	-18	271	-14	27	24	1
			+65	100	+22	65	109	1		8228	+4	293	-15	22	121	3	4	4	2
			+69	104	+22	70	291	10		8228	+9	298	-15	23	194	2	2	2	2
			+71	106	+19	71	12	2		8221	+11	300	+19	17	24	1	1	1	1
			(10)	(32)	(+7)		987	44		8222	+69	355	+19	69	48	1	1	1	1
			(8)	(21)	(+7)		1,016	29		8216	+78	7	-18	80	339	1			
			(5)	(8)	(+7)					(5)	(280)	(+6)	(780)	12					
			(5)	(8)	(+7)					10	11	56	8223	-58	217	+16	59	24	10
			(5)	(8)	(+7)					8232	-36	239	-15	42	61	9	9	9	2
			(5)	(8)	(+7)					8232	-34	241	-15	40	48	1			
3	10 35	8222	-16	352	+18	20	61	9	Do.	11	13	2	8229	-5	270	-13	20	16	4
			-12	356	+17	15	61	5		8228	+17	292	-16	28	100	5			
			-4	4	-17	25	388	1		8228	+21	296	-15	30	24	2			
			+45	53	+17	47	48	1		8228	+23	298	-14	30	145	3			
			+50	58	+18	50	24	1		8222	+82	357	+19	82	48	1			
			+51	59	+10	51	12	4		(5)	(275)	(+6)	475	35					
			+56	64	-22	62	48	5		(5)	(275)	(+6)							
			(5)	(8)	(+7)		642	26		11	13	2	8235	-80	181	-17	82	97	1
			(5)	(8)	(+7)					8234	-70	191	+13	70	24	1			
			(5)	(8)	(+7)					8233	-45	216	+16	47	6	4			
4	10 31	8226	-6	349	-12	19	6	1	VG	12	11	56	8232	-66	240	-15	29	61	7
			-3	352	+17	10	73	11		8232	-58	191	+16	59	97	1			
			-2	353	-19	27	6	3		8234	-55	194	+14	55	73	7			
			0	355	+18	11	48	8		8233	-40	209	+12	40	6	3			
			+2	357	+15	8	24	6		8233	-27	222	+15	29	48	8			
			+10	5	-17	27	388	1		8232	-9	240	-15	23	48	6			
			+56	51	+16	56	24	1		8232	-5	244	-15	21	194	4			
			+64	59	+16	64	24	1		8228	+41	290	-16	46	48	1			
			+68	63	-21	71	12	1		8236	+44	293	-23	52	12	3			
			(5)	(355)	(+7)		605	33		8228	+48	297	-14	52	121	8			
5	12 18	8229	-70	271	-13	72	145	1	G	13	11	20	8228	-68	168	-12	70	388	5
			-50	291	-15	55	24	1		8237	-63	173	-12	65	48	1			
			+10	351	-12	20	12	2		8237	-63	173	-12	65	48	1			
			+11	352	+18	16	121	10		8235	-54	182	-16	58	73	7			
			+14	355	+18	19	97	11		8234	-45	191	+16	46	12	6			
			+15	356	-15	26	48	5		8234	-41	195	+14	41	109	2			
			+18	359	-16	29	48	2		8233	-18	218	+17	21	48	4			
			+24	5	-17	33	339	5		8233	-12	224	+16	16	61	4			
			(*)	+70	51	-26	76	6		8232	+6	242	-15	22	48	1			
			(6)	(341)	(+6)		840	38		8232	+9	245	-15	23	194	1			
6	11 47	8229	-58	270	-13	61	61	1	G	14	11	20	8228	-76	160	-13	78	194	1
			-36	292	-15	42	6	1		8228	-68	168	-12	70	388	5			
			+25	353	-12	31	12	1		8237	-63	173	-12	65	48	1			
			+26	354	+16	27	73	12		8237	-63	173	-12	65	48	1			
			+27	355	+18	30	121	7		8235	-54	182	-16	58	73	7			
			+31	359	-17	38	121	10		8234	-45	191	+16	46	12	6			
			+39	7	-19	46	267	2		8233	-18	218	+17	21	48	4			
			(8)	(326)	(+6)		661	34		8233	-12	224	+16	16	61	4			
			(8)	(326)	(+6)		661	34		8232	+6	242	-15	22	48	1			
			(8)	(326)	(+6)		661	34		8232	+9	245	-15	23	194	1			

See footnotes at end of table.

## POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR OCTOBER 1946—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic				Area of spot or group	Spot count	Plate quality	Observatory	Date	Eastern standard time	Mount Wilson group No.	Heliographic				Area of spot or group	Spot count	Plate quality	Observatory
			Difference in longitude	Longitude	Latitude	Distance from center of disk								Difference in longitude	Longitude	Latitude	Distance from center of disk				
Oct. 14	10 10 32	8241	-83	140	+21	83	291	1	G	U. S. Naval.	Oct. 19	10 10 13	8248	-75	82	-27	80	73	1	F	U. S. Naval.
		8240	-72	151	-19	76	315	1					8246	-58	90	+26	60	61	1		
		8238	-63	160	-13	67	215	2					8245	-46	111	+24	49	73	1		
		8236	-56	167	-12	58	242	2					8244	-34	123	+6	34	97	1		
		8237	-50	173	-15	55	73	2					8241	-16	141	+21	22	315	1		
		8237	-50	173	-13	54	73	2					8243	-14	145	+11	15	24	3		
		8235	-41	152	-14	46	48	1					8243	-9	148	+12	11	12	2		
		8234	-30	103	+14	31	145	10					8240	-7	160	-20	27	201	1		
		8233	-5	216	+17	12	48	7					8235	0	157	-18	24	24	1		
		8233	+1	224	+15	8	48	9					8238	+3	160	-15	22	145	1		
Oct. 15	10 10 11	8241	+19	242	-15	27	12	2					8239	+5	162	+11	7	12	2		
		8232	+20	243	-15	29	170	1					8247	+8	165	+12	10	12	2		
		8236	+68	201	-26	73	73	1					8237	+12	160	-15	25	121	6		
		8236	+70	263	-23	74	145	1					8242	+19	176	+15	22	73	2		
		8238	+73	295	-15	77	194	8					8242	+24	181	+15	25	97	1		
		(10)	(223)	(+6)			2,095	50					8234	+37	194	+13	38	24	4		
													8233	+60	226	+16	60	48	1		
													(14)	(167)	(+6)		1,502	32			
Oct. 16	11 11 12	8241	-59	141	+21	60	315	1	F	Do.	20	10 10 31	8246	-70	65	+14	79	12	1	VG	Mt. Wilson.
		8240	-59	151	-19	63	201	1					8249	-74	70	+11	74	97	6		
		8238	-58	152	+12	57	24	3					8246	-63	81	-26	68	145	1		
		8238	-50	160	-13	53	194	1					8246	-48	96	+29	52	6	1		
		8238	-40	170	-12	43	242	1					8246	-45	99	+26	50	73	1		
		8237	-40	170	-15	45	36	2					8250	-35	109	-31	48	48	3		
		8237	-37	173	-13	42	73	2					8245	-33	111	+24	38	61	2		
		8242	-33	178	+17	33	12	1					8230	-31	113	-29	45	61	8		
		8235	-29	181	-15	36	61	2					8244	-20	124	+6	20	97	1		
		8234	-19	191	+14	21	73	2					8241	-3	142	+21	16	291	1		
Oct. 17	10 10 30	8234	-15	195	+14	19	145	1					8240	+5	147	-21	27	24	2		
		8233	+8	218	+17	14	61	3					8240	+4	148	-20	24	359	1		
		8233	+15	225	+16	18	24	2					8238	+12	156	-18	26	16	6		
		8232	+34	244	-15	40	194	2					8238	+13	157	-15	23	170	1		
		(10)	(210)	(+6)			1,745	24					8238	+25	169	-15	32	97	11		
													8243	+33	177	+15	35	61	12		
													8242	+45	180	+15	46	12	3		
													8234	+50	194	+12	51	12	2		
													8233	+81	225	+16	81	24	1		
													(12)	(144)	(+5)		1,743	74			
Oct. 18	13 13 4	8245	-53	113	+23	83	48	1	P	Do.	21	10 10 52	8240	-67	63	+10	67	12	1	G	U. S. Naval.
		8244	-73	122	+6	73	109	1					8249	-60	70	+10	60	97	6		
		8243	-60	136	+16	60	48	4					8246	-48	82	-24	54	73	1		
		8241	-56	140	+21	44	339	1					8246	-33	97	+27	39	48	1		
		8240	-51	145	+14	55	24	4					8245	-23	108	+27	30	12	1		
		8240	-47	149	-19	54	315	1					8246	-20	110	-30	40	61	2		
		8239	-44	152	+14	44	12	5					8250	-15	115	-29	37	48	4		
		8238	-38	158	-15	45	194	1					8244	-7	123	+6	7	97	1		
		8238	-29	167	-13	36	291	1					8241	+10	140	+21	19	315	1		
		8236	-26	168	-17	37	6	1					8240	+19	140	-20	31	339	1		
Oct. 19	13 13 4	8237	-21	175	-14	28	48	3					8238	+29	150	-14	34	194	1		
		8242	-19	177	+15	21	97	12					8242	+47	177	+17	48	121	13		
		8235	-16	180	+13	13	97	5					8242	+51	181	+15	52	48	1		
		8234	-11	194	+13	13	97	5					(10)	(180)	(+6)		1,902	40			
		8233	+40	222	+14	41	100	7													
		8232	+60	243	-15	63	194	1													
		(12)	(183)	(+6)			1,902	40													

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR OCTOBER 1946—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic					Observatory	Date	Eastern standard time	Mount Wilson group No.	Heliographic					Observatory				
			Difference in longitude	Longitude	Latitude	Distance from center of disk	Area of spot or group					Difference in longitude	Longitude	Latitude	Distance from center of disk	Area of spot or group					
Oct. 24	10 48	8253	°	°	°	°	97	1	G	U. S. Naval.	Oct. 29	h m	8260	°	°	°	97	U. S. Naval.			
		8251	-88	3	-14	88	6	2				10 35	8259	-69	316	+30	71	1			
		8251	-59	32	-12	61	6	1					8259	-45	340	+10	45	61			
		8251	-52	39	-10	53	291	1					8253	-20	5	-15	28	170			
		8251	-50	41	-8	52	48	7					8253	-17	8	-13	24	194			
		8251	-40	51	-8	43	242	4					8258	-8	17	+12	11	12			
		8252	-39	52	-9	29	50	24					8254	+5	30	+14	11	24			
		8249	-22	69	+9	22	242	12					8254	+7	32	+16	13	61			
		8249	-19	72	+9	20	242	13					8251	+13	38	-10	20	72			
		8248	-9	82	-28	34	61	1					8252	+21	46	-29	40	6			
		8246	+7	98	+26	22	12	4					8252	+27	52	-28	43	6			
25	10 25	8245	+21	112	+23	27	12	1					8251	+30	55	-7	33	218			
		8250	+23	114	-32	42	194	25					8249	+43	68	+9	43	73			
		8244	+35	126	+5	35	48	2					8249	+50	75	+9	50	73			
		8241	+48	139	+20	50	194	2					8248	+57	82	-25	62	12			
		8240	+60	151	-22	63	291	2					(9)	(25)	(+5)	1,080	30				
		8238	+70	161	-15	72	145	1													
		(12)	(91)	(+5)		2,149	82						30	10 13	8260	-56	316	+30	58	97	2
		8253	-75	3	-14	76	194	1	F				8259	-31	341	+9	31	36	1		
		8243	-70	8	-13	71	218	1					8253	-8	4	-15	22	194	1		
		8251	-53	25	-7	55	36	2					(*)	-7	5	-30	35	48	4		
26	12 24	8254	-48	30	+17	50	6	3					8253	-4	8	-13	18	194	1		
		8251	-40	38	-9	43	218	2					8258	+4	16	+10	7	24	1		
		8251	-36	42	-8	38	61	4					8258	+9	21	+11	11	48	1		
		8251	-28	50	-8	32	218	4					8254	+10	22	+14	13	48	8		
		8252	-27	51	-28	42	12	2					8251	+27	39	-10	31	48	1		
		8249	-10	68	+9	11	145	10					8251	+41	53	-9	43	48	1		
		8249	-5	73	+9	6	242	5					8251	+44	56	-9	47	291	1		
		8248	+4	82	-27	32	61	1					8249	+64	76	+9	64	73	1		
		8246	+20	98	+25	27	48	1					(7)	(12)	(+5)	1,149	23				
		8245	+30	108	+25	35	12	2					31	10 28	8260	-55	304	+34	58	48	1
		8250	+35	113	-32	50	145	9					8260	-49	310	+28	52	97	5		
27	12 46	8250	+40	118	-33	53	48	1					8260	-43	316	+29	48	48	2		
		8244	+47	125	+5	47	48	1					8259	-18	341	+9	19	24	1		
		8241	+60	138	+20	60	242	2					8252	+4	3	-32	36	61	1		
		8240	+71	149	-22	73	388	3					8253	+5	4	-16	21	121	1		
		8238	+86	164	-15	86	145	1					8252	+8	7	-29	35	97	7		
		(13)	(78)	(+5)		2,487	55						8253	+10	9	-14	21	194	1		
		(12)	(64)	(+5)		1,573	44						8258	+22	21	-10	23	36	1		
		8256	-70	354	+10	70	48	2	F				8258	+30	29	+13	31	24	1		
		8257	-70	354	-14	72	12	3					8258	+37	36	+15	39	6	1		
		8253	-60	4	-15	63	145	1					8251	+40	39	-10	43	145	12		
		8253	-56	8	-13	58	194	1					8251	+56	55	-9	58	24	1		
28	11 24	8255	-52	12	-27	60	6	1					8251	+58	57	-9	59	291	1		
		8254	-35	29	+17	37	24	2					(5)	(359)	(+4)	1,216	36				
		8251	-25	38	-8	29	194	2													
		8251	-22	42	-8	26	24	2													
		8251	-18	46	-8	23	24	3													
		8251	-10	54	+7	16	218	1													
		8249	+4	68	+9	5	121	11													
		8249	+10	74	+9	11	242	8													
		8248	+18	82	-26	35	48	1													
		8246	+30	94	+24	32	6	2													
		8250	+53	117	-33	61	73	1													
		8244	+60	124	+5	60	24	1													
27	12 46	8241	+74	138	+19	74	170	2													
		(12)	(64)	(+5)		1,573	44														
		8259	-71	339	+10	71	48	2	F												
		8253	-47	3	-15	51	170	1													
		8253	-47	3	-13	50	194	1													
		8254	-20	30	+16	23	48	9													
		8251	-12	38	-9	17	194	2													
		8251	-1	49	-9	14	48	12													
		8251	+5	55	-8	13	242	1													
		8249	+18	68	+9	19	145	9													
		8249	+31	81	-25	43	48	1													
		8250	+70	120	-35	76	97	1													
28	11 24	(*)	+73	123	-20	77	73	2													
		(8)	(50)	(+5)		1,452	46														
		8260	-80	318	+30	80	97	2	F												
		8259	-59	339	+9	59	61	2													
		8253	-34	4	-15	39	158	1													
		8253	-30	8	-13	35	194	1													
		8254	-10	28	+17	16	12	3													
		8254	-5	33	+15	12	12	4													
		8251	+1	39	-10	14	97	4													
		8251	+11	49	-9	18	24	5													
		8251	+18	56	-8	22	242	2													
		8249	+31	69	+9	31	97	12													
		8249	+37	75	+9	37	121	10													
		8248	+45	83	-25	52	24	1													
27	12 46	(7)	(38)	(+5)		1,136	47														

Mean daily area for 31 days = 1,349  
Mean 10 g+s for 31 days = 128.1

\*Not numbered.  
VG=very good; G=good; F=fair; P=poor.

PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR  
OCTOBER 1946

[Based on observations at Zurich except as indicated by an asterisk. Data furnished through the courtesy of Prof. W. Brunner, Swiss Federal Observatory, Zurich Switzerland.]

October 1946	Relative numbers	October 1946	Relative numbers	October 1946	Relative numbers
1	91	11	50	21	128
2	107	12	68	22	133
3	73	13	92	23	132
4	77	14	144	24	123
5	55	15	115	25	136
6	64	16	131	26	128
7	67	17	126	27	130
8	65	18	127	28	106
9	57	19	134	29	109
10	61	20	131	30	102
				31	103

Mean, 31 days = 102.1

Chart I. Departure (°F) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, October 1946



Chart II. Tracks of Centers of Anticyclones, October 1946. (Inset) Departure of Monthly Mean Pressure from Normal.

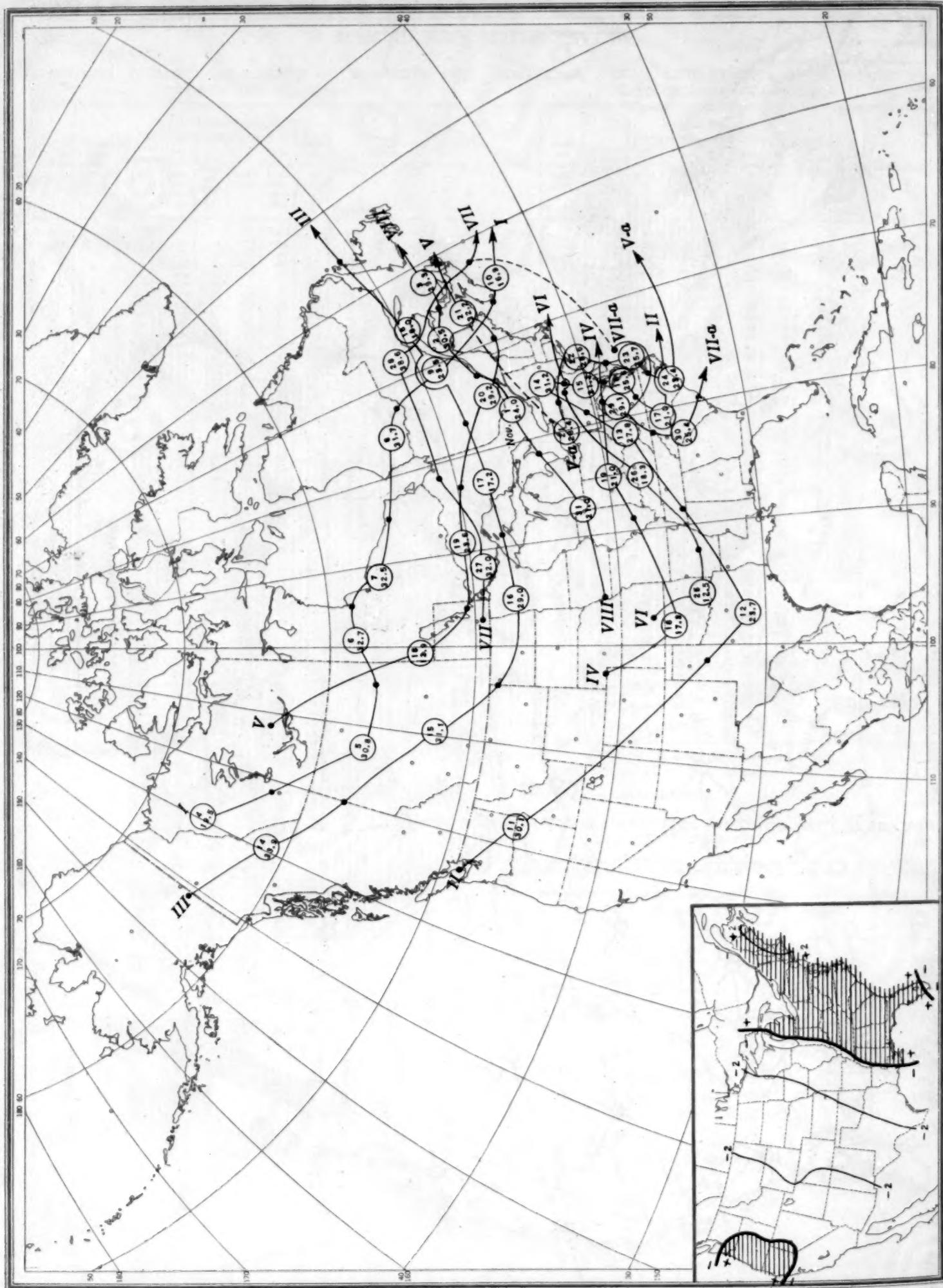
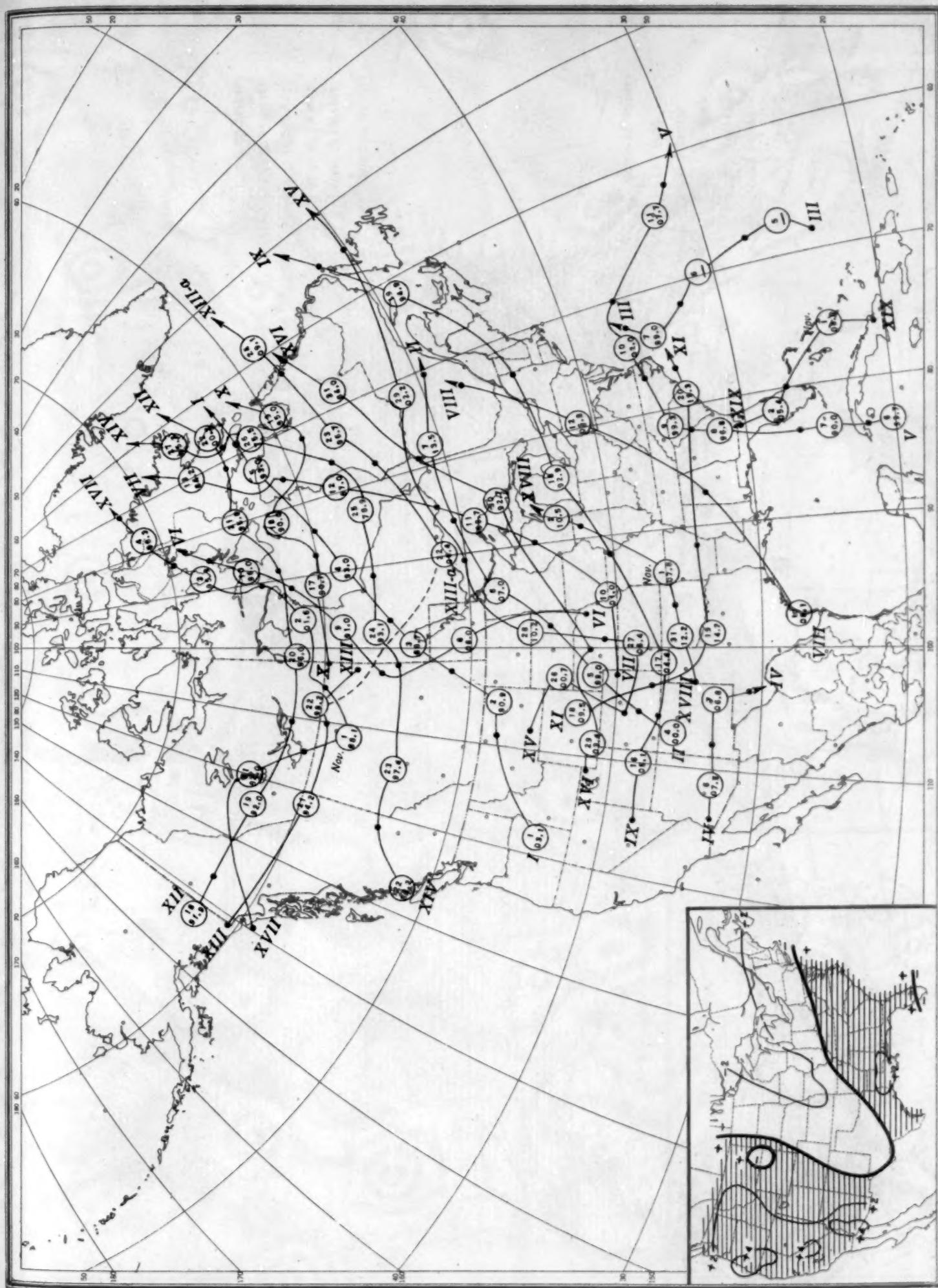


Chart III. Tracks of Centers of Cyclones October 1946 (Inset) Change in Mean Pressure from Preceding Month

Chart III. Tracks of Centers of Cyclones, October 1946. (Inset) Change in Mean Pressure from Preceding Month

Circle indicates position of antevolve at 7:30 a. m. (75th meridian time). with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)



Circle indicates position of cyclone at 7:30 a. m. (76th meridian time). with barometric reading. Dot indicates position of cyclone at 7:30 p. m. (75th meridian time)

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, October 1946

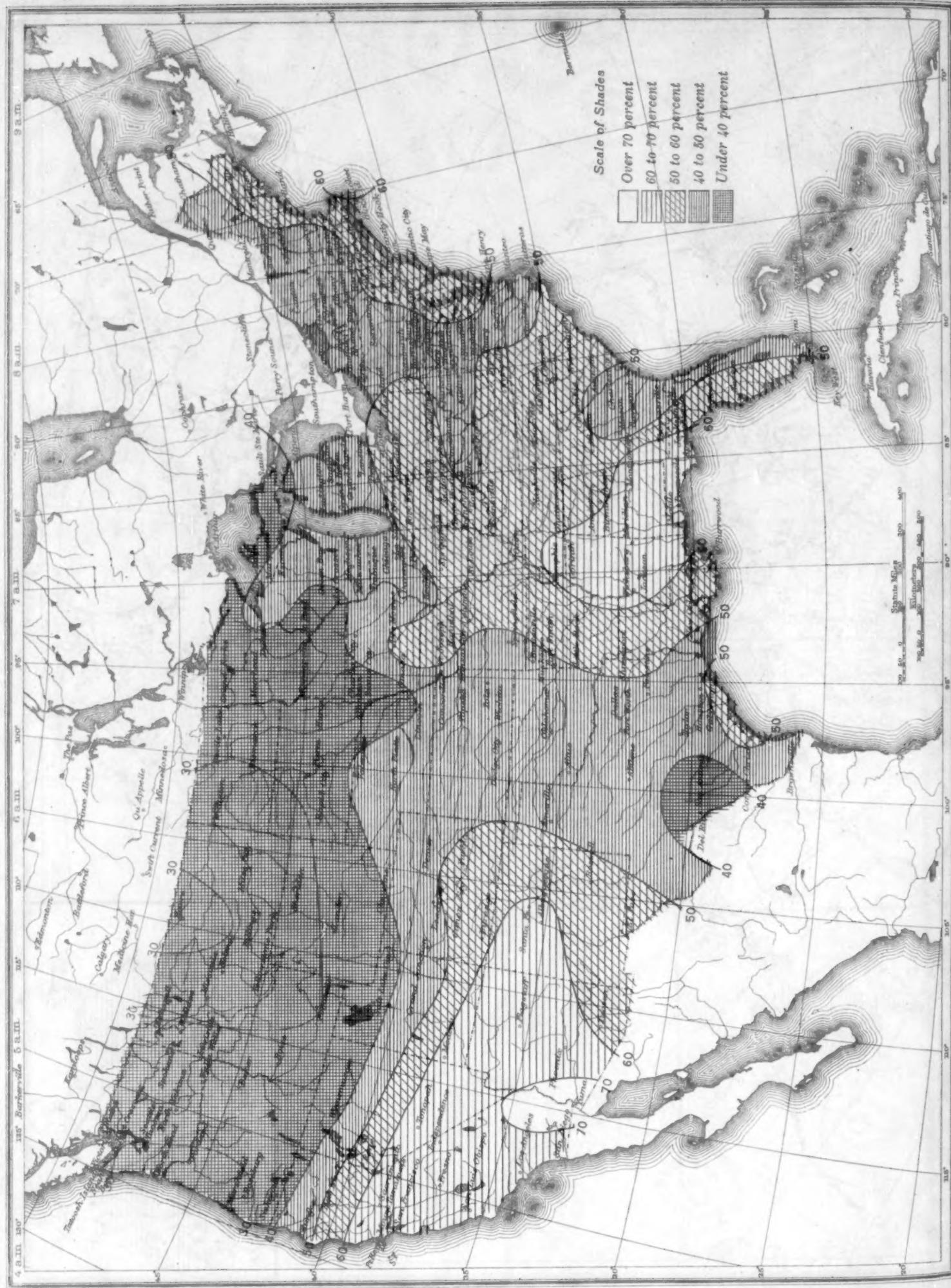


Chart V. Total Precipitation, Inches, October 1946. (Inset) Departure of Precipitation from Normal

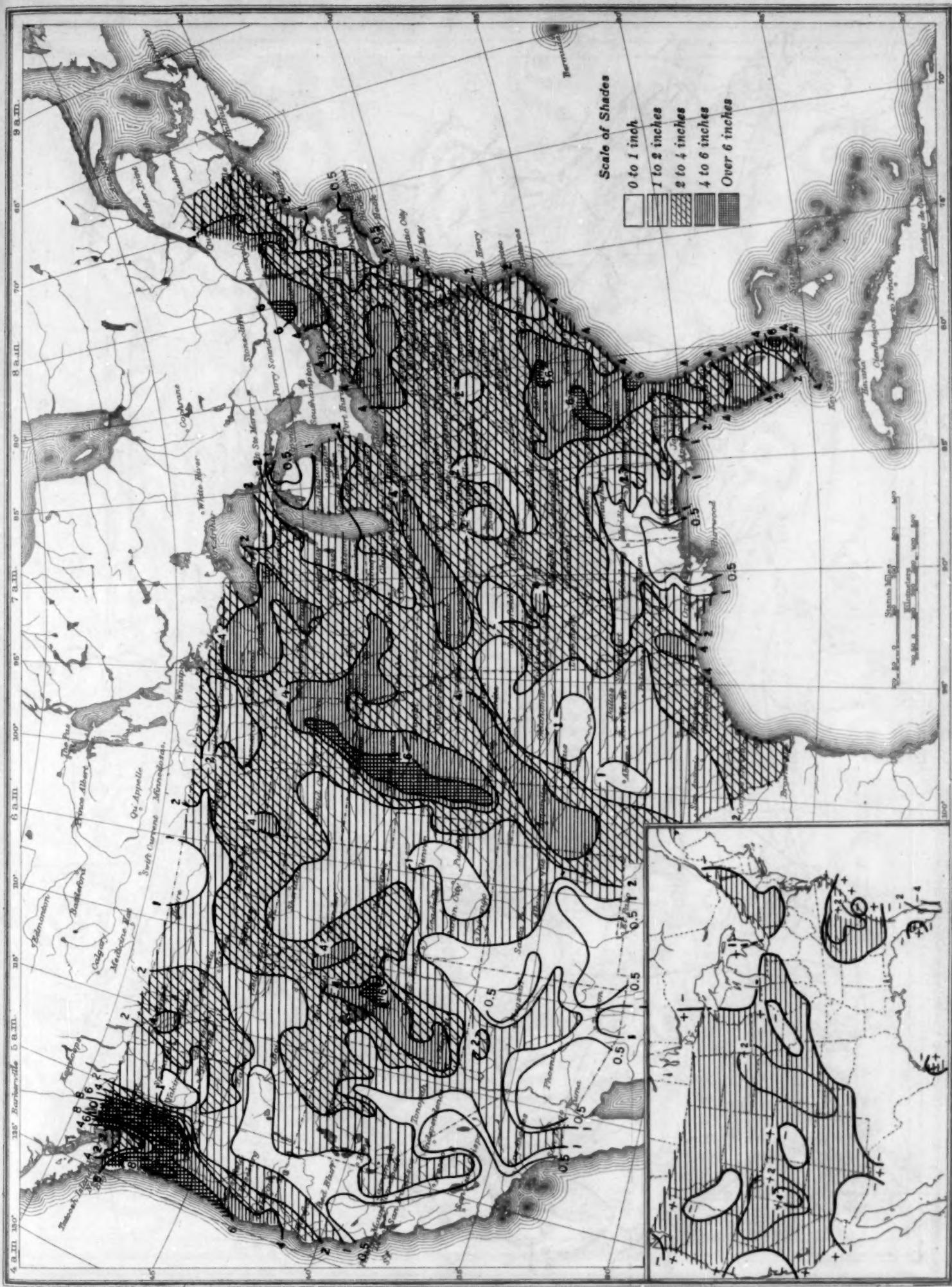


Chart VI. Isobars (mb.), at Sea Level and Isotherms (°F.) at Surface; Prevailing Winds, October 1946

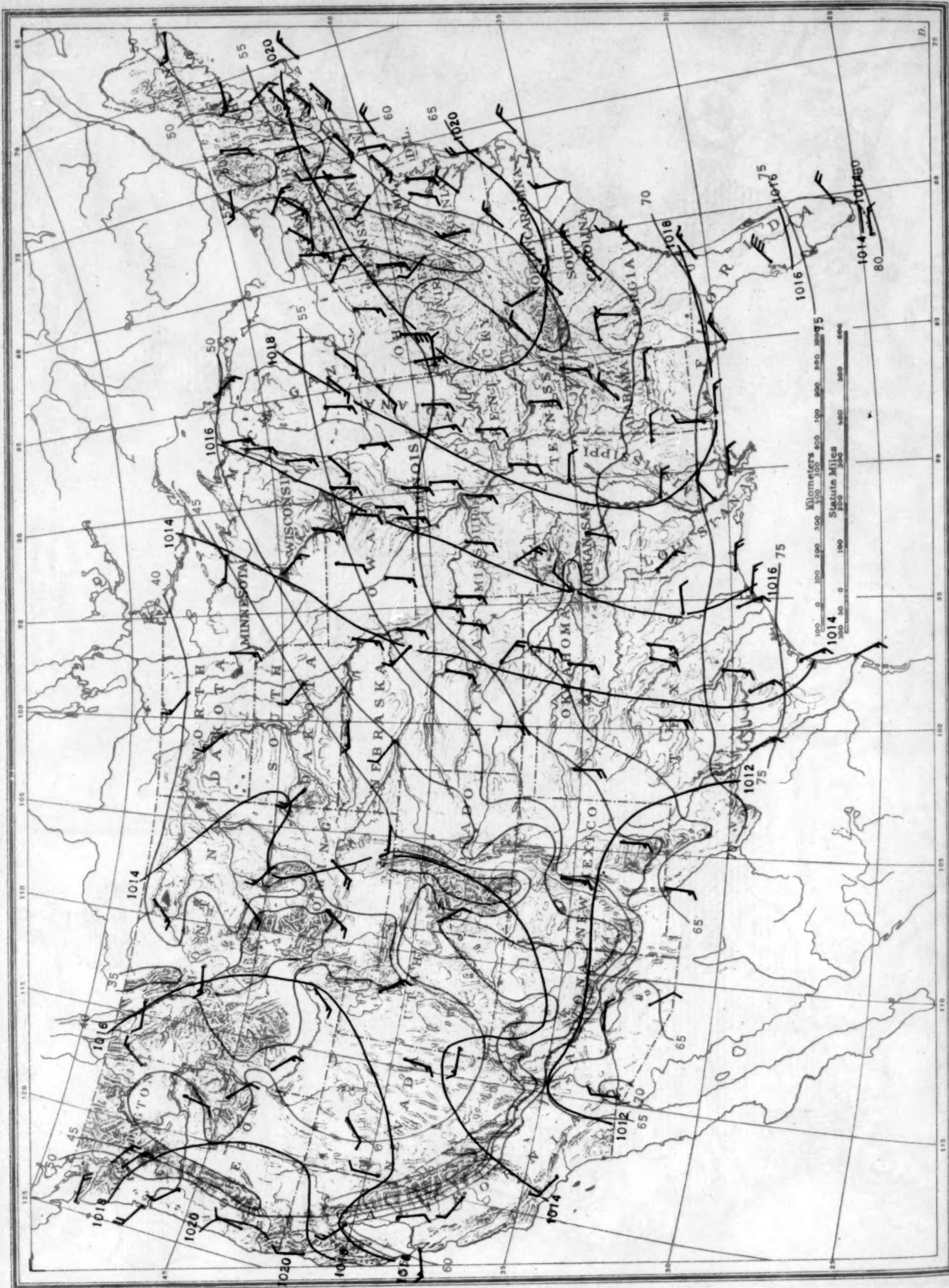
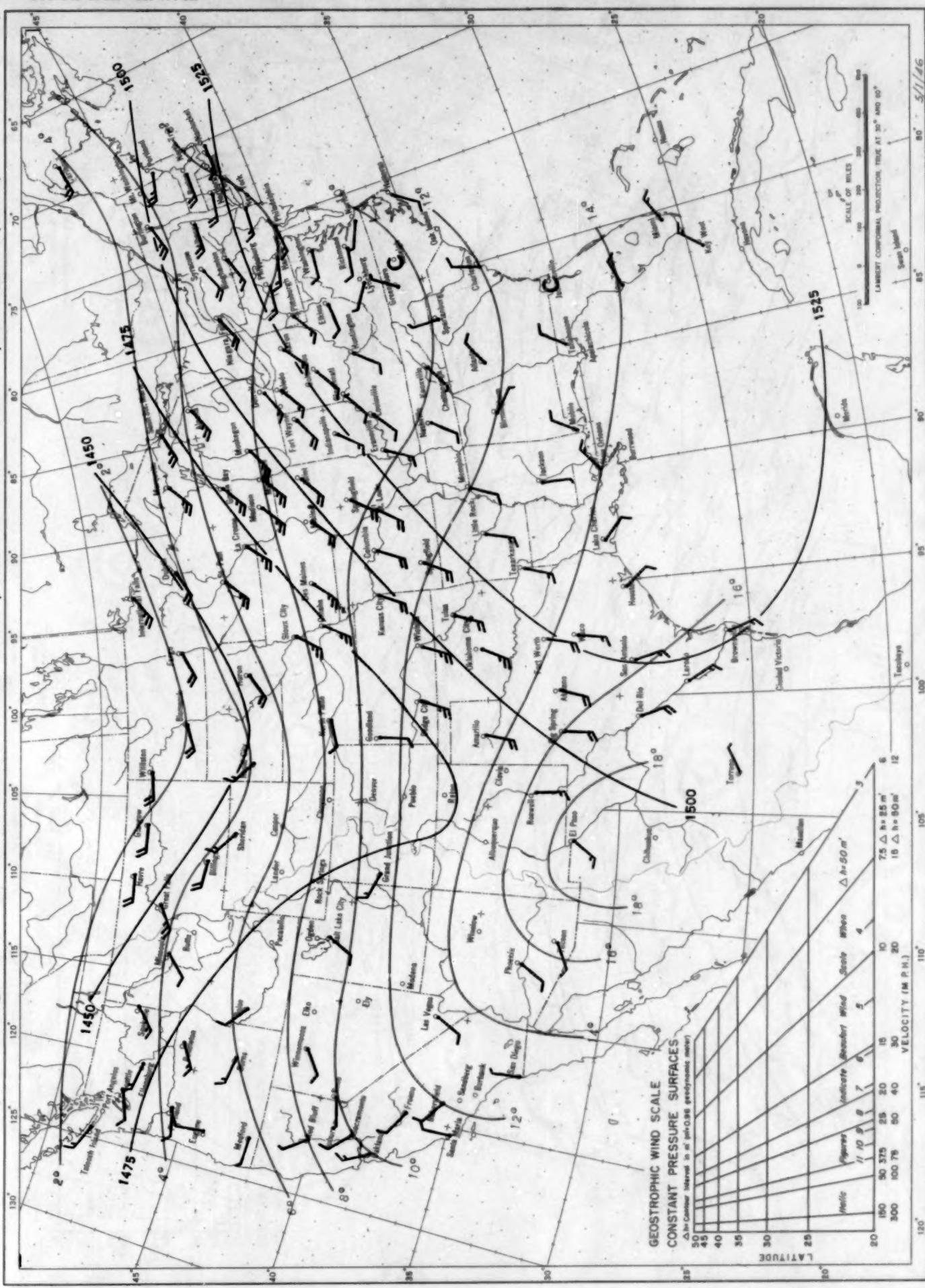


Chart VIII, October 1946. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m.s.l.)

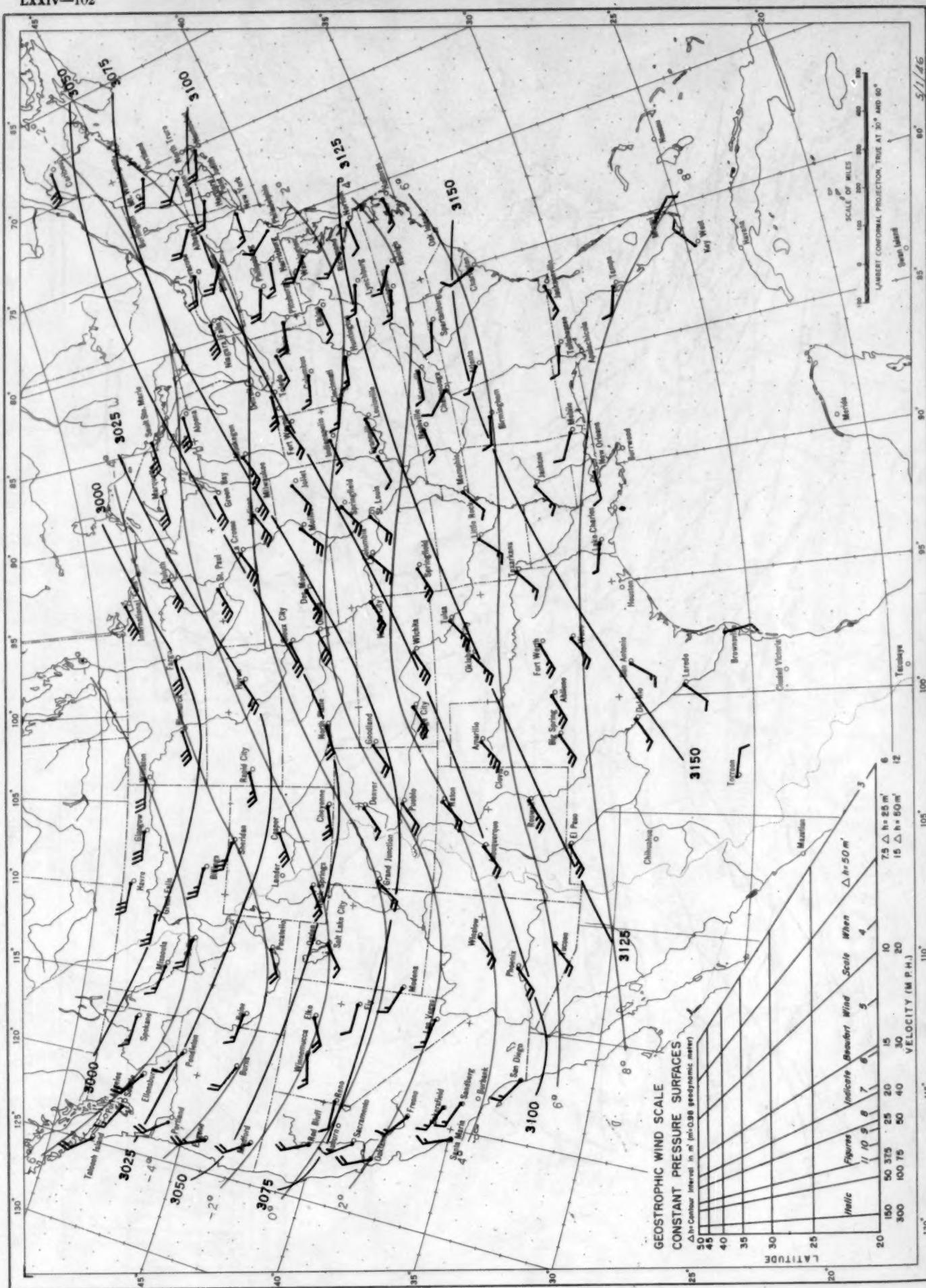


Contour lines and isotherms based on radiosonde observations at 0300 G.C.T. and winds based on pilot balloon observations at 2200 G.C.T.

Chart IX, October 1946. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m.s.l.)

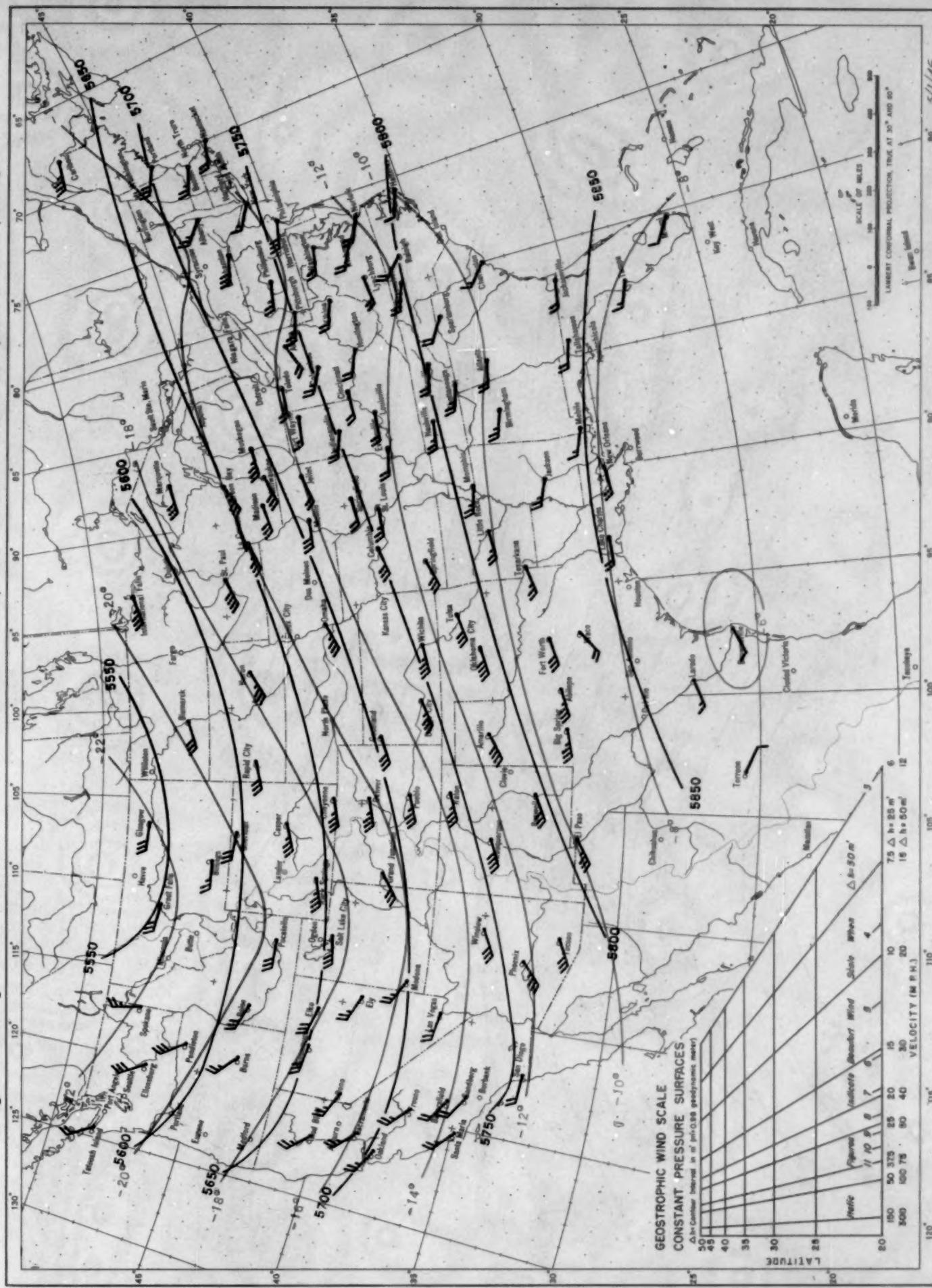
LXXIV-102

October 1946. M. W. R.



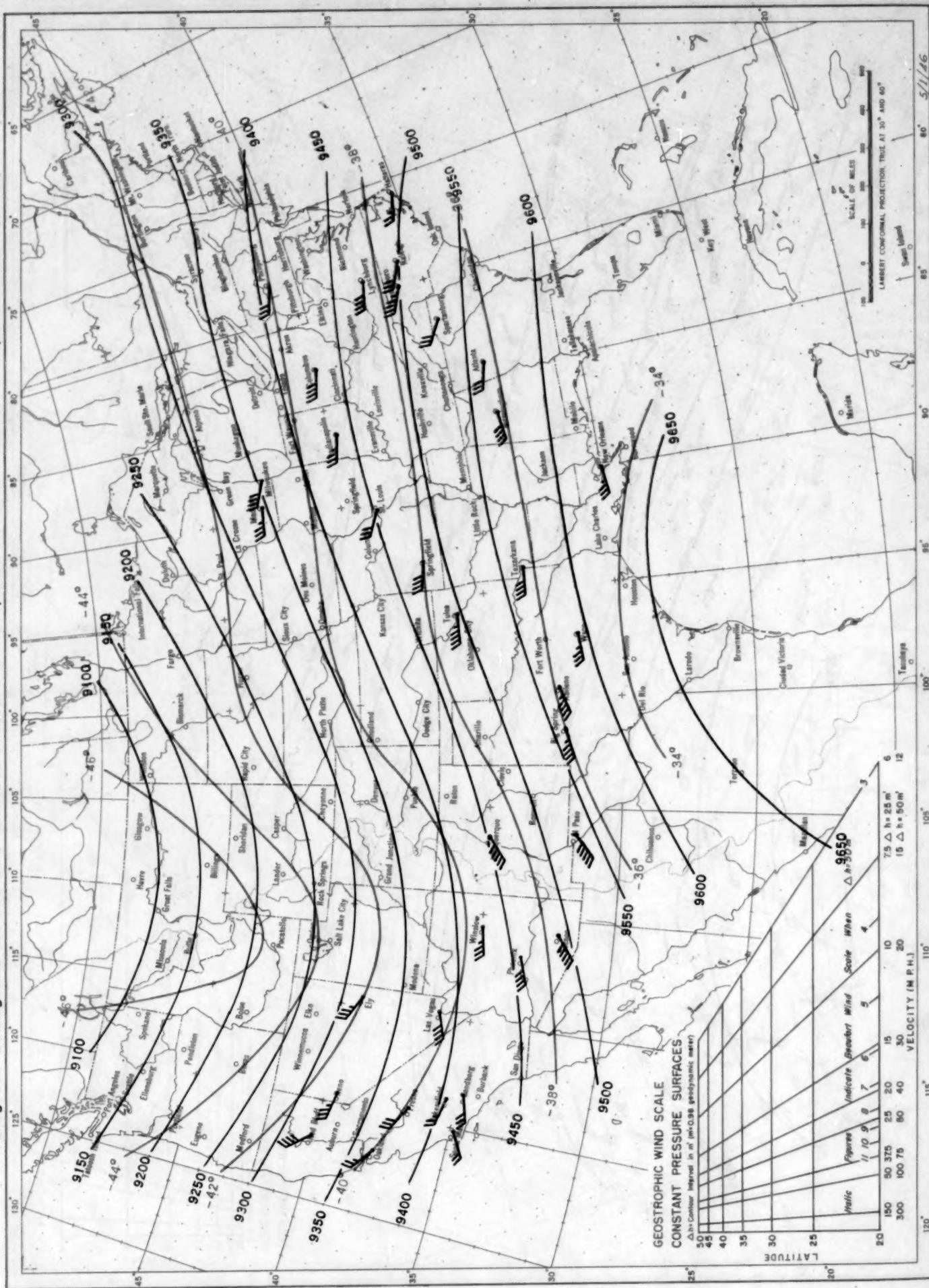
Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

Chart X, October 1946. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0200 G.C.T. and winds based on pilot balloon observations at 2200 G.C.T.

Chart XI, October 1946. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.